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**NORTHFLEET URBAN DISTRICT  
COUNCIL**

*Report on certain matters*

*concerning*

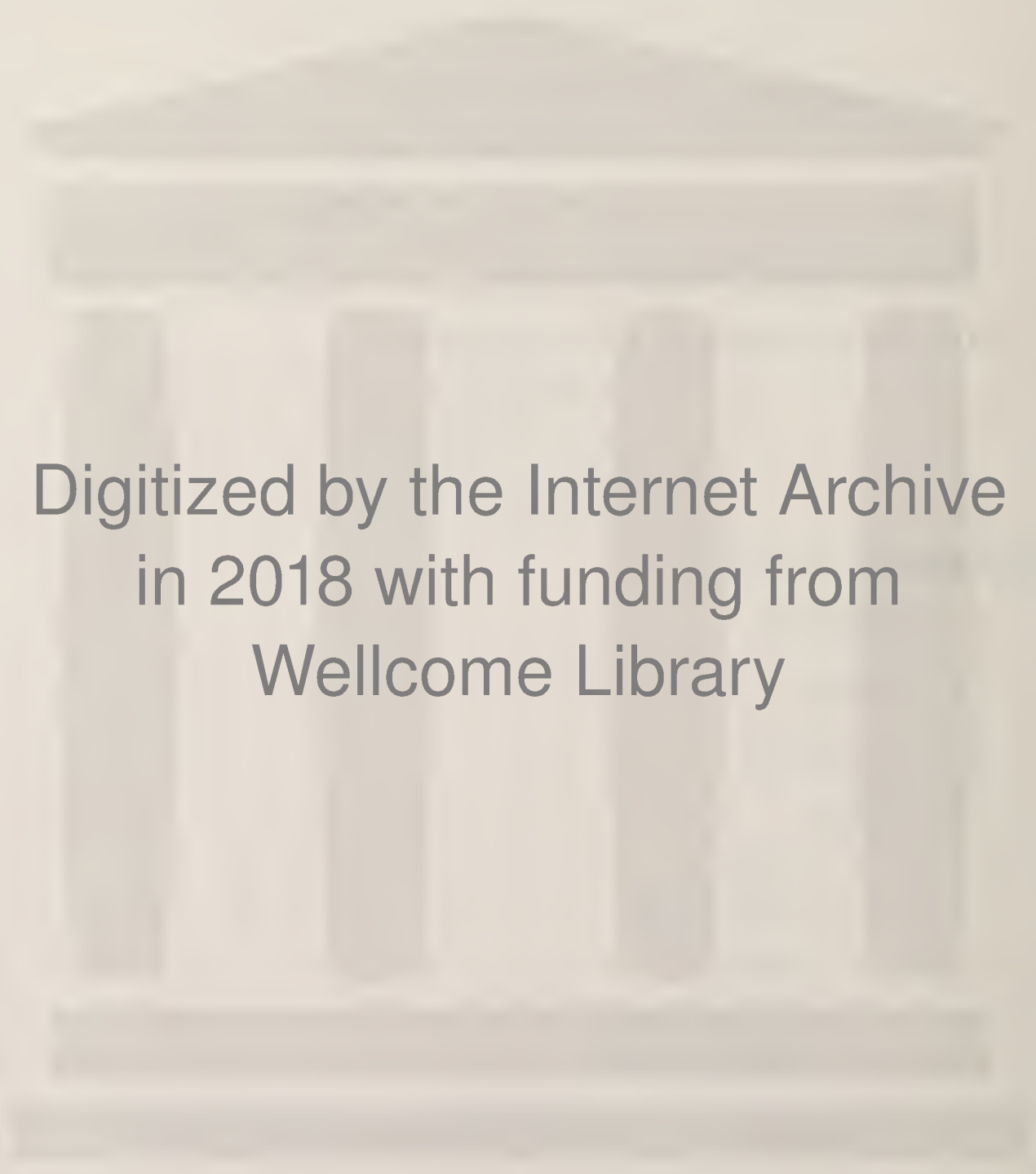
**PUBLIC HEALTH**

*for the years*

**1958 & 1959**



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## S U M M A R Y

The trend of mild increase in the population continued in 1958 and 1959.

In 1959 the increase in the population was the greatest of the last ten years.

The upward trend in the annual number of births which began in 1955 continued in 1958 and 1959. The trend in the birth rate was similar.

The number of deaths in 1958 was 20% above the usual annual number. The death rate of that year was similarly exceptional.

The pattern of death was in keeping with that to be expected in an area provided with social services of modern standard.

Infant vaccination rates against smallpox and diphtheria were comparatively good. Vaccination against poliomyelitis became an established practice by 1959.

Revaccination of children against smallpox was not practised.

A case of typhoid fever, of local origin, occurred in 1958.

Influenza occurred in February 1959.

The number of new houses built in 1959 was the largest for a decade and this increase was mainly due to private enterprise building.

The number of houses demolished in these two years meant that more than seventy families had to be rehoused.

Flooding occurred in September 1958.

A detailed account of the food sampling undertaken during 1958 and 1959 is given.

In 1959 Swanscombe Urban District Council became a participant in this Council's Joint Controlled Tipping Scheme for the disposal of refuse.

The problem of dust from cement works is reviewed.





NORTHFLEET URBAN DISTRICT COUNCIL

Report on Certain Matters concerning  
Public Health for the Years 1958 and 1959

April, 1961.

To THE CHAIRMAN AND MEMBERS OF THE  
NORTHFLEET URBAN DISTRICT COUNCIL

Mr. Chairman, Ladies & Gentlemen,

INTRO-  
DUCTION

This report is written to discuss the information which comes our way in the attempt to review two years' experience of certain matters concerning the health of the people of Northfleet Urban District. Apart from being a statutory duty, the reason for compiling these reports is that this is an exercise in the study of the health of the district, which provides self-instruction and guidance in the management of certain local affairs.

Our population is small in number and in view of the part that will be played by the influence of chance, the question arises as to whether detailed study of our material is worth-while and whether our statistical records of sickness and health are worthy of attention. However, as this report covers two years, the distortions produced by chance will be more readily seen.

POPULATION

Table I

The increase in population in 1959 was the greatest in this decade and perhaps this was associated with the exceptional number of private enterprise houses built, with the accompanying increase in the immigration of young people. The population trend is one of gradual increase, but the rate of increase is small and in recent years no great changes have taken place.

Increases in the population are due to the excess of births over deaths, (i.e., natural increase), and to immigration - both are related to new houses built. The trend in recent years is illustrated in the following table:-

|              | 1952   | 1953   | 1954   | 1955   | 1956   | 1957   | 1958   | 1959   |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Population   | 19,150 | 19,280 | 19,450 | 19,630 | 19,850 | 20,110 | 20,370 | 20,720 |
| Increase     | 310*   | 130    | 170    | 180    | 220    | 260    | 260    | 350    |
| Natural inc. | 54     | 129    | 116    | 100    | 88     | 144    | 103    | 148    |
| Immigration  | 256    | 1      | 54     | 80     | 132    | 116    | 157    | 212    |
| Houses built | 134    | 129    | 157    | 135    | 176    | 177    | 159    | 376    |

\*The population in 1951 was 18,840

BIRTHS                    At 356 the number of births in 1959 was the highest this decade but, nevertheless, is less than the births for the two post-war years 1946 and 1947, which were 393 and 427, respectively. Like the national birth rate, the rate here has shown a mild upward trend since 1955:

|   | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|------|------|------|------|------|------|
| Number of births                            | 315  | 300  | 303  | 342  | 349  | 356  |
| Birth rate Northfleet adjusted by comp. f.* | 15.7 | 14.8 | 14.8 | 16.5 | 16.6 | 16.7 |
| Birth rate England and Wales                | 15.2 | 15.0 | 15.6 | 16.1 | 16.4 | 16.5 |

DEATHS                    At 246 the number of deaths registered in 1958 was the highest recorded in the last twenty years but the figure 208 of 1959 was a return to our usual level. Apart from 1958 our death rate seems generally to coincide with that of England and Wales.

|   | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|------|------|------|------|------|------|
| Deaths Northfleet                           | 199  | 200  | 215  | 198  | 246  | 208  |
| Death rate Northfleet adjusted by comp. f.* | 10.9 | 10.9 | 12.4 | 11.4 | 14.0 | 11.6 |
| Death rate England and Wales                | 11.3 | 11.7 | 11.7 | 11.5 | 11.7 | 11.6 |

The increased number of deaths in 1958 was spread over the first three quarters of the year. As usual, in 1958 and in 1959 the first quarter of the year contributed a much greater number of deaths than any other quarter.

The number of aged deaths in these two years was similar.

It is of interest that the Northfleet percentage of deaths in hospital is about half that of Dartford. It would be enlightening to know whether this is due to social habit or to accessibility of the hospitals.

Diseases of the Respiratory System                    Deaths from diseases of the respiratory system were similar in number to previous years, the figures from 1955 onwards being 21, 25, 25, 27 and 32. The population contains a rather high proportion of social classes IV and V which entitles us to expect an incidence of respiratory disease higher than elsewhere however, the death rate in 1959 was 1.5 per thousand, the same as that of England and Wales.

Cancer of the Lung                    Deaths from cancer of the lung from 1955 onwards have been: females 0, 1, 0, 1, 0; males 7, 5, 4, 10 and 14. The death rate from this disease in Northfleet for 1958 and 1959 was 0.63 per thousand population. The 1959 rate for England and Wales was 0.46 and for London was 0.64.

\*comp. f. = comparability factor, see Table I.



Circulatory Disease            1958 was a year with a large number of deaths from this cause, the numbers for the years 1955 to 1959 being:

|                                 | 1955      | 1956      | 1957      | 1958      | 1959      |
|---------------------------------|-----------|-----------|-----------|-----------|-----------|
| Coronary disease                | 29        | 29        | 30        | 42        | 29        |
| Hypertension with heart disease | 5         | 2         | 3         | 5         | 4         |
| Other heart disease             | 32        | 55        | 34        | 44        | 24        |
| Other circulatory disease       | 6         | 9         | 5         | 4         | 6         |
| All circulatory disease         | <u>72</u> | <u>95</u> | <u>72</u> | <u>95</u> | <u>63</u> |

Coronary Disease            Included in circulatory disease is coronary disease, as shown above.    The death rate for this disease in Northfleet for 1958 and 1959 was 1.74 per thousand population.    The 1959 rate for England and Wales was 1.87 and for London 1.89.

Deaths from Violence       Road accidents:    in 1959 there was a death of a 56 year old male who was knocked down by an auto-cycle.

Other accidents:    in 1958 two males aged 7 and 21 years died from drowning, the younger in a bathing pool elsewhere.    A male aged 12 died from a vehicle accident in a goods yard.    A male aged 47 was found with a fractured skull in the road.    A male aged 47 died from multiple injuries after a fall at work.

                                 In 1959 a male aged 45 died from an injured spine at work, and a female aged 90 years died from a fractured pelvis.

Suicide:    in 1958 a female died aged 51 years.

                                 In 1959 males died aged 41, 53 and 78 years and a female aged 47 years.

Deaths relating to the Welfare of Mothers & Infants       Maternal deaths:    there was none in 1958 and 1959.    There has been one such death in each of the years 1948, 1951 and 1954, but in other years since the war there has been none.

Still births:    in the years 1955 to 1959 the number of still births have been 6, 6, 4, 13, 17, and for the last two years the still birth rate has been over twice that of England and Wales.    For the present we can assume that this is due to chance.

Deaths in the first week of life:    in 1958 and 1959 these were 4 and 5 respectively which, with the still births, produced a rate, the perinatal death rate, above that of England and Wales but again this may be due to chance.

Deaths in the first month, i.e., neonatal deaths, and deaths in the first year of life, i.e., infant deaths, produced rates for 1958 and 1959 much the same as England and Wales.

The causes of infant deaths were as follows:-

Less than 1 day old:

- 1958 Prematurity 3.
- 1959 Prematurity 1, Asphyxia 2.

1 to 6 days old:

- 1958 Haemorrhagic disease of the newborn 1.
- 1959 Difficult delivery 1, Pneumonia 1.

7 to 27 days old:

- 1958 Prematurity 1, Congenital malformation 1.
- 1959 None.

28 to 365 days old:

- 1958 Meningococcal septicaemia 1, Congenital malformation 2, Bronchitis 1.
- 1959 Colitis 1, Pneumonia 1.

All the infant deaths of 1958 and all but two of the infant deaths of 1959 occurred in hospital.

The nature of these deaths illustrate that infective conditions now play a minor part in infant mortality and that the major part of the problem is now related to the unborn child and his delivery to independent existence.

INFECTIOUS DISEASE

Virus Infections

POLIO-MYELITIS  
Table VIII(c)

No case of poliomyelitis occurred during 1958 or 1959. Since 1945 cases have occurred as follows:-

|           |                 |      |      |
|-----------|-----------------|------|------|
| 1945-1949 | None            | 1954 | None |
| 1950      | 4               | 1955 | 3    |
| 1951      | 9 with 2 deaths | 1956 | 1    |
| 1952      | 1               | 1957 | 2    |
| 1953      | 3               |      |      |

By the end of 1959, 2,971 children 0 - 14 years of age had received third injections against poliomyelitis, which meant that 62% of the children of this age had received the immunity available from vaccination against this disease.

MEASLES  
Table V

Measles made its expected appearance early in 1959. Measles in this district, as in England and Wales, has a two yearly cycle, and appears with high incidence in the years ending with an odd number.



Thus:-

|      |                  |      |    |
|------|------------------|------|----|
| 1945 | 137              | 1946 | 7  |
| 1947 | 170 with 1 death | 1948 | 22 |
| 1949 | 345              | 1950 | 98 |
| 1951 | 335              | 1952 | 75 |
| 1953 | 188              | 1954 | 2  |
| 1955 | 478              | 1956 | 46 |
| 1957 | 224              | 1958 | 9  |
| 1959 | 223              |      |    |

As some of the measles' cycles start in December, the rhythm of the cycle is not shown at its best by annual figures.

The post-infectious case of encephalitis which occurred in 1959 followed measles.

## INFLUENZA

The epidemic of influenza at the end of 1957 continued into the beginning of 1958 and in February 1959 another outbreak of influenza occurred, when sickness benefit claims more than doubled their normal figure. Only two deaths were attributed to influenza, however, in each of these two years.

## SMALLPOX

Table  
VIII(b)

Infant vaccinations against smallpox seem to have diminished in percentage in recent years and vaccination is seemingly being performed later in the infant's life. This, no doubt, is due to the vaccination against smallpox being overlooked or postponed through the numerous other vaccinations which the infant now receives.

However, our vaccination rate in 1955 was exceptionally high, being 79%, and the lower figure of 66% in 1958 compares favourably with all other areas. About one third of the infant vaccinations here are performed by general practitioners and two thirds by the clinics.

It is interesting to see that the percentage of infants vaccinated now with vaccination as a voluntary practice is greater here than the percentage of infants vaccinated in the days of "compulsory" vaccination. The infant vaccination rate for 1939 was 62% and that figure was higher than the four preceding years.

However, revaccination of school children is neglected, as in other districts, so that less than 2% of infants vaccinated are being revaccinated on entry into school life.

This area neighbours a busy port and the fact that school children are not having their immunity against smallpox boosted is a matter which requires to be watched.

## OTHER VIRUS DISEASES

Table V

Reports from schools showed that in 1958 there was an outbreak of chicken-pox and also an outbreak of mumps, both of which are not notifiable.

## Bacterial Infections

### DIPHTHERIA

Table  
VIII(a)

The infant vaccination rate was similar to previous years, and much the same as that of Kent. The number of children with immunity through vaccination was 52%, a figure similar to other districts. 62% of the vaccinations were performed at clinics, a percentage higher than in neighbouring authorities.

Since 1945 the numbers of cases of diphtheria have been:  
1945 - 1, 1947 - 2, 1948 - 3.

### WHOOPING COUGH

Table  
VIII(d)

Vaccination against whooping cough showed that 63% of infants were vaccinated. As 1958 was the first year we received figures for whooping cough vaccination, we cannot compare this percentage with previous years.

Notifications of whooping cough since 1945 have largely ranged between 20 and 100 each year. The figures since 1955, however, have been 4, 44, 98, 6 and 40. One death occurred in 1951 and two in 1953.

### TYPHOID

Table V

A child of 11 years was notified as suffering from typhoid fever in 1958 and was a contact of his grandmother in a neighbouring district, who is known to have been a typhoid carrier.

The child recovered from the disease and in 1959 specimens obtained from the patient by the Council's Public Health Inspectors on three separate weeks showed that he had become free of the infection.

### FOOD POISONING

Table V

The case of food poisoning was admitted to hospital and discharged after two days. The illness appeared to be staphylococcal food infection but this was not confirmed.

### TUBERCULOSIS

Table VI

Observations on the statistical material of this disease are included amongst the figures given in the table. It will be seen that the number of cases of respiratory tuberculosis on the register continued to increase but we have enquired into a number of cases which have been on the register for some years and the names of about a score will be removed after the position has been clarified.

It will be noticed that none of the 7 cases of respiratory tuberculosis removed from the register in 1958 by death was classified in the death returns to this disease. This is worth bearing in mind when we are interpreting the statistical decline of deaths from tuberculosis. The unnotified death in 1959 had refused to be medically examined.



## ENVIRONMENTAL MATTERS

I - HOUSING        The number of houses completed in 1959 was the highest in this decade and although the number of Council houses built was comparatively large, the increase in the building of private enterprise houses was more noteworthy. The waiting list of applicants for Council houses was reduced appreciably between 1958 and 1959, and although this was partly attributable to a review of the list, it may also have been due to more houses in the district becoming available.

                  The number of houses demolished in these two years meant that more than seventy families had to be rehoused.

II - WATER        Part of this district forms the gathering ground for the water of the Medway Water Board and it will be seen that in 1958 there was some evidence of pollution of the raw water of the Northfleet Pumping Station. This was associated with the exceptional storm on the evening of the 5th September which caused flooding in some areas. About four inches of rain fell during the twenty-four hours ended 9 a.m. on the 6th September.

III -              Relevant observations are included amongst the figures in the  
DRAINAGE        body of the report.

IV - FOOD        Several samples of pasteurised milk which failed to pass the prescribed test were obtained from a distributor in this district. The Food & Drugs Authority, who license the pasteurising plant were informed, conditions were enquired into and subsequent samples were satisfactory.

                  In 1958 - one and in 1959 - five samples of ice cream failed to satisfy the cleanliness test, in so far as they were classed as Grade III.

AIR                The readings of the Council's gauges, which are measuring atmospheric pollution, are best interpreted along with those of neighbouring districts and this is the purpose of presenting the readings for the whole of the Thames-side area in the Annual Report of the Thames-side Joint Committee for the Abatement of Atmospheric Pollution. The readings taken by this office have, therefore, been excluded from this report.

                  A review of the problem of dust from cement works, however, is included as an appendix. This is a revision of a similar appendix included in the reports to Dartford Borough and Dartford Rural District.

Dr. F.M.  
McDONNELL

As the Council will appreciate, a large part of this report covers the period during which my late colleague Dr. F.M. McDonnell was in office. Dr. McDonnell served this Council as Medical Officer of Health for many years and I regret that the reason for my writing this report is due to his untimely death.

ACKNOWLEDGEMENTS

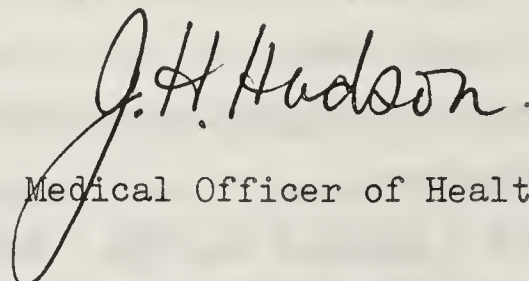
I wish to emphasise that the information in this report concerning housing, water, drainage, food, air, etc., is largely the product of the work of the Council's Chief and Additional Public Health Inspectors, upon whom so much of the maintenance of sound standards of environmental hygiene depend. This work is co-ordinated by the Council's Chief Public Health Inspector who is also responsible for the Council's public cleansing service.

All the members of this Department have contributed to this report, which owes much to the patience and skill of our Clerical Assistant.

We have received contributions from many sources but especially from the Kent County Council, the Medway Water Board, the Medway and Gravesend Hospital Management Committee and other Departments of this Council.

We appreciate the interest and support shown by the Chairman and Members of the Public Health Committee during the two years under review.

Your obedient servant,

  
Medical Officer of Health.

JHH/AMTC



TABLE I - SOCIAL CONDITIONS

|   |        |
|---|--------|
| Area (acres) 1958/1959                              | 3,770  |
| Population (Census 1931)                            | 16,223 |
| Population (Census 1951)                            | 18,921 |
| Mid-year home population 1958 (R.G.'s estimate)     | 20,370 |
| Mid-year home population 1959 (R.G.'s estimate)     | 20,720 |
| Number of domestic and agricultural dwelling houses |        |
| assessed to rates: 31.3.59.                         | 6,383  |
| 31.3.60.  | 6,729  |
| Number of Council dwellings: Pre-war 441)           |        |
| (as at 31.3.59) Post-war 1,201)                     |        |
| Temporary bungalows 50)                             | 1,692  |

SOCIAL CLASS distribution of occupied and retired males aged 15 and over:

Proportions per 1,000 total as shown in 1951 census

|     | Kent<br>Admin.<br>County | Dartford<br>R.D. | Dartford<br>Borough | Northfleet<br>U.D. | Swanscombe<br>U.D. |
|-----|--------------------------|------------------|---------------------|--------------------|--------------------|
| I   | 46                       | 30               | 27                  | 16                 | 12                 |
| II  | 165                      | 144              | 132                 | 94                 | 76                 |
| III | 523                      | 461              | 560                 | 500                | 472                |
| IV  | 142                      | 204              | 125                 | 168                | 141                |
| V   | 124                      | 161              | 156                 | 222                | 299                |

#### AGE STRUCTURE

Comparability Factor. The comparability factor for births is an indication of the proportion of women aged 18 to 44 years. When the local crude birth rate is multiplied by the appropriate comparability factor, the birth rate so adjusted is comparable with the crude rate for England and Wales or with the corresponding adjusted rate for any other area.

The comparability factor for deaths is determined by the proportion of all age groups. When the crude death rate of this district is multiplied by the appropriate comparability factor, the death rate is comparable with the crude death rate for England and Wales or with the corresponding adjusted rate for any other area.

Comparability factors for births and deaths for the last five years have been as follows:-

|        | 1955 | 1956 | 1957 | 1958 | 1959 |
|--------|------|------|------|------|------|
| Births | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Deaths | 1.07 | 1.15 | 1.16 | 1.16 | 1.16 |

These comparability factors indicate that the proportion of women aged 18 to 44 years is more than in England and Wales and that, therefore, the birth rate has to be adjusted downwards for comparison.

Also, the comparability factors indicate that the age structure of Northfleet is younger than that of England and Wales and, therefore, the death rate has to be adjusted upwards for purposes of comparison.

TABLE I - continued

EMPLOYMENT. The number of people employed in the major industries in Northfleet in 1958 was approximately as follows:-

|  | M     | F   | Persons |
|--|-------|-----|---------|
| Associated Portland Cement Manufacturers Ltd.,<br>(Bevans Works) | 592   | 121 | 713     |
| Associated Electrical Industries Ltd.                            | 1,196 | 744 | 1,940   |
| Bowater's Thames Paper Mills                                     | 1,604 | 224 | 1,828   |
| Britannia Lead Company Ltd.                                      | 153   | 11  | 164     |
| Fleetway Publications Ltd.                                       | 592   | 121 | 713     |
| Gravesend Welding & Electrical Engineering<br>Works Ltd.         | 122   | 9   | 131     |

Unemployed - Gravesend and district, registered with Employment Exchange:-

|           | M   | F   | Persons |
|-----------|-----|-----|---------|
| 8.12.1958 | 524 | 177 | 701     |
| 7.12.1959 | 342 | 145 | 487     |

ILLEGITIMATE BIRTH RATE (per 1,000 live births)

|      | Northfleet | England and Wales |
|------|------------|-------------------|
| 1958 | 32         | 49                |
| 1959 | 22         | 51                |

DOMESTIC DWELLINGS ACCORDING TO RATEABLE VALUE 31.3.60.  
(Number per thousand)

|                                | Northfleet<br>°/oo | Swanscombe<br>°/oo | Dartford<br>B. °/oo | Dartford<br>R.D. °/oo |
|--------------------------------|--------------------|--------------------|---------------------|-----------------------|
| Not exceeding £10              | 11                 | 25                 | 4                   | 21                    |
| Exceeding £10 but not over £13 | 26                 | 108                | 15                  | 42                    |
| " £13 " " " £18                | 136                | 171                | 103                 | 112                   |
| " £18 " " " £25                | 298                | 616                | 255                 | 221                   |
| " £25 " " " £30                | 266                | 58                 | 281                 | 307                   |
| " £30 " " " £40                | 235                | 14                 | 288                 | 216                   |
| " £40 " " " £50                | 24                 | 5                  | 43                  | 51                    |
| " £50 " " " £60                | 3                  | 2                  | 8                   | 16                    |
| " £60 " " " £70                | 1                  | 1                  | 2                   | 5                     |
| " £70 " " " £80                | -                  | -                  | 1                   | 4                     |
| " £80 " " " £100               | -                  | -                  | -                   | 2                     |
| " £100                         | -                  | -                  | -                   | 3                     |
|                                | <u>1,000</u>       | <u>1,000</u>       | <u>1,000</u>        | <u>1,000</u>          |

ABSOLUTE NUMBER OF DOMESTIC DWELLINGS

|       |       |        |        |
|-------|-------|--------|--------|
| 6,644 | 2,516 | 13,296 | 13,943 |
|-------|-------|--------|--------|

AGRICULTURAL DWELLING HOUSES  
(Excluded from above)

|    |    |    |     |
|----|----|----|-----|
| 85 | 18 | 11 | 788 |
|----|----|----|-----|



TABLE II - BIRTHS &amp; DEATHS, 1958 &amp; 1959

|   | 1958       |            |            | 1959       |            |            |
|---|------------|------------|------------|------------|------------|------------|
|   | M          | F          | Persons    | M          | F          | Persons    |
| Live Births:                                    |            |            |            |            |            |            |
| Legitimate                                      | 174        | 164        | 338        | 167        | 181        | 348        |
| Illegitimate                                    | <u>3</u>   | <u>8</u>   | <u>11</u>  | <u>1</u>   | <u>7</u>   | <u>8</u>   |
|   | <u>177</u> | <u>172</u> | <u>349</u> | <u>168</u> | <u>188</u> | <u>356</u> |
| Deaths from all causes:                         | 120        | 126        | 246        | 108        | 100        | 208        |
| Deaths from pregnancy,<br>childbirth, abortion: | -          | -          | -          | -          | -          | -          |
| Still Births:                                   |            |            |            |            |            |            |
| Legitimate                                      | 8          | 5          | 13         | 7          | 9          | 16         |
| Illegitimate                                    | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>1</u>   | <u>1</u>   |
|   | <u>8</u>   | <u>5</u>   | <u>13</u>  | <u>7</u>   | <u>10</u>  | <u>17</u>  |
| Deaths - 0 to 6 days:                           |            |            |            |            |            |            |
| Legitimate                                      | 3          | 1          | 4          | 5          | -          | 5          |
| Illegitimate                                    | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   |
|   | <u>3</u>   | <u>1</u>   | <u>4</u>   | <u>5</u>   | <u>-</u>   | <u>5</u>   |
| Deaths - 7 to 27 days:                          |            |            |            |            |            |            |
| Legitimate                                      | 1          | 1          | 2          | -          | -          | -          |
| Illegitimate                                    | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   |
|   | <u>1</u>   | <u>1</u>   | <u>2</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   |
| Deaths - 28 to 364 days:                        |            |            |            |            |            |            |
| Legitimate                                      | 3          | 1          | 4          | 1          | 1          | 2          |
| Illegitimate                                    | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   | <u>-</u>   |
|   | <u>3</u>   | <u>1</u>   | <u>4</u>   | <u>1</u>   | <u>1</u>   | <u>2</u>   |
| Total under 1 year:                             | 7          | 3          | 10         | 6          | 1          | 7          |

## Rates per 1,000 Home Population

|  | 1958 | 1959 |
|--|------|------|
| Crude live birth rate Northfleet U.D.    | 17.1 | 17.2 |
| " " " " " " " " adjusted by comp. factor | 16.6 | 16.7 |
| " " " " England & Wales                  | 16.4 | 16.5 |
| Crude death rate Northfleet U.D.         | 12.1 | 10.0 |
| " " " " " " " " adjusted by comp. factor | 14.0 | 11.6 |
| " " " " England & Wales                  | 11.7 | 11.6 |

## Rates per 1,000 Live and Still Births

|                          |                 |      |      |
|--------------------------|-----------------|------|------|
| Maternal death rate:     | Northfleet U.D. | 0.   | 0.   |
|                          | England & Wales | 0.43 | 0.38 |
| Still birth rate:        | Northfleet U.D. | 35.8 | 45.5 |
|                          | England & Wales | 21.6 | 21.0 |
| Perinatal death rate:    | Northfleet U.D. | 47.0 | 58.9 |
| (s.b. & deaths 0-6 days) | England & Wales | 35.1 | 34.2 |

## Rates per 1,000 Live Births

|                      |                 |      |      |
|----------------------|-----------------|------|------|
| Neonatal death rate: | Northfleet U.D. | 17.2 | 14.0 |
| (deaths 0-27 days)   | England & Wales | 16.2 | 15.8 |
| Infant death rate:   | Northfleet U.D. | 28.6 | 19.7 |
| (deaths 0-364 days)  | England & Wales | 22.6 | 22.2 |

TABLE III - CAUSES OF DEATH ACCORDING TO SEX

## Registrar General's Return

|   | 1958 |     |         |    | 1959 |     |         |    |
|---|------|-----|---------|----|------|-----|---------|----|
|   | M    | F   | Persons |    | M    | F   | Persons |    |
| All causes                              | 120  | 126 | 246     |    | 108  | 100 | 208     |    |
| Tuberculosis, respiratory               | 1    | -   | 1       |    | -    | -   | -       |    |
| Tuberculosis, other                     | -    | 1   | 1       |    | -    | 1   | 1       |    |
| Syphilitic disease                      | -    | -   | -       |    | -    | -   | -       |    |
| Diphtheria                              | -    | -   | -       |    | -    | -   | -       |    |
| Whooping cough                          | -    | -   | -       |    | -    | -   | -       |    |
| Meningococcal infections                | -    | 1   | 1       |    | -    | -   | -       |    |
| Acute poliomyelitis                     | -    | -   | -       |    | -    | -   | -       |    |
| Measles                                 | -    | -   | -       |    | -    | -   | -       |    |
| Other infective and parasitic diseases  | 1    | -   | 1       |    | 1    | -   | 1       |    |
| Malignant neoplasm, stomach             | 2    | 3   | 5)      |    | 2    | 4   | 6)      |    |
| Malignant neoplasm, lung, bronchus      | 10   | 1   | 11)     |    | 14   | -   | 14)     |    |
| Malignant neoplasm, breast              | -    | 5   | 5)      |    | -    | 7   | 7)      |    |
| Malignant neoplasm, uterus              | -    | 4   | 4)      | 49 | -    | -   | -)      | 44 |
| Other malignant and lymphatic neoplasms | 10   | 13  | 23)     |    | 9    | 8   | 17)     |    |
| Leukaemia, aleukaemia                   | 1    | -   | 1)      |    | -    | -   | -)      |    |
| Diabetes                                | 1    | 2   | 3       |    | -    | -   | -       |    |
| Vascular lesions of nervous system      | 12   | 22  | 34      |    | 11   | 22  | 33      |    |
| Coronary disease, angina                | 28   | 14  | 42)     |    | 16   | 13  | 29)     |    |
| Hypertension with heart disease         | 2    | 3   | 5)      |    | 2    | 2   | 4)      |    |
| Other heart disease                     | 14   | 30  | 44)     | 95 | 10   | 14  | 24)     | 63 |
| Other circulatory disease               | 1    | 3   | 4)      |    | 3    | 3   | 6)      |    |
| Influenza                               | 1    | 1   | 2)      |    | -    | 2   | 2)      |    |
| Pneumonia                               | 5    | 2   | 7)      |    | 6    | 4   | 10)     |    |
| Bronchitis                              | 10   | 8   | 18)     | 27 | 13   | 6   | 19)     | 32 |
| Other disease of the respiratory system | -    | -   | -)      |    | -    | 1   | 1)      |    |
| Ulcer of stomach and duodenum           | 3    | 1   | 4       |    | -    | -   | -       |    |
| Gastritis, enteritis and diarrhoea      | -    | -   | -       |    | -    | 1   | 1       |    |
| Nephritis and nephrosis                 | 2    | -   | 2       |    | 1    | 2   | 3       |    |
| Hyperplasia of prostate                 | 2    | -   | 2       |    | 4    | -   | 4       |    |
| Pregnancy, childbirth, abortion         | -    | -   | -       |    | -    | -   | -       |    |
| Congenital malformations                | 3    | -   | 3       |    | -    | -   | -       |    |
| Other defined and ill-defined diseases  | 6    | 10  | 16      |    | 11   | 8   | 19      |    |
| Motor vehicle accidents                 | 2    | -   | 2       |    | 1    | -   | 1       |    |
| All other accidents                     | 3    | 1   | 4       |    | 1    | 1   | 2       |    |
| Suicide                                 | -    | 1   | 1       |    | 3    | 1   | 4       |    |
| Homicide and operations of war          | -    | -   | -       |    | -    | -   | -       |    |



TABLE IV - QUARTERLY &amp; MAIN CAUSES OF DEATH (compiled locally)

|                 | All     | Main     | Other  |                      | Main Causes in Detail |                               |                      |      |      |      |
|-----------------|---------|----------|--------|----------------------|-----------------------|-------------------------------|----------------------|------|------|------|
|                 |         |          |        | (440-468)            | (330-334)             | (470-527)                     |                      |      |      |      |
|                 | Causes  | Causes   | Causes | Circulatory diseases | (140-205) Cancer      | Vascular les. C.N.S. diseases | Respiratory diseases |      |      |      |
| Northfleet      |         |          |        |                      |                       |                               |                      |      |      |      |
| U.D.            |         |          |        |                      |                       |                               |                      |      |      |      |
| 1958            | 246     | 205      | 41     | 95                   | 49                    | 34                            | 27                   |      |      |      |
| %               | 100%    | 83%      | 17%    | 38%                  | 20%                   | 14%                           | 11%                  |      |      |      |
| 1959            | 208     | 172      | 36     | 63                   | 44                    | 33                            | 32                   |      |      |      |
| %               | 100%    | 83%      | 17%    | 31%                  | 21%                   | 16%                           | 15%                  |      |      |      |
| Dartford        |         |          |        |                      |                       |                               |                      |      |      |      |
| Town            |         |          |        |                      |                       |                               |                      |      |      |      |
| 1958            | 450     | 361      | 93     | 165                  | 86                    | 51                            | 59                   |      |      |      |
| %               | 100%    | 80%      | 20%    | 37%                  | 19%                   | 11%                           | 13%                  |      |      |      |
| 1959            | 436     | 366      | 70     | 151                  | 92                    | 63                            | 60                   |      |      |      |
| %               | 100%    | 84%      | 16%    | 35%                  | 21%                   | 14%                           | 14%                  |      |      |      |
| England & Wales |         |          |        |                      |                       |                               |                      |      |      |      |
| 1958            | 526,843 | 431,140  | 95,703 | 197,514              | 95,804                | 76,177                        | 61,645               |      |      |      |
| %               | 100%    | 82%      | 18%    | 38%                  | 18%                   | 14%                           | 12%                  |      |      |      |
| 1959            | 527,641 | 431,276  | 96,365 | 191,707              | 97,117                | 75,150                        | 67,302               |      |      |      |
| %               | 100%    | 82%      | 18%    | 36%                  | 19%                   | 14%                           | 13%                  |      |      |      |
| Where died      |         |          |        |                      |                       |                               |                      |      |      |      |
|                 | 1st.    | Quarters |        |                      | Year                  | 1st.                          | Quarters             |      |      | Year |
|                 |         | 2nd.     | 3rd.   | 4th.                 | 1958                  |                               | 2nd.                 | 3rd. | 4th. | 1959 |
| Home            | 52      | 40       | 35     | 28                   | 155                   | 46                            | 28                   | 22   | 34   | 130  |
| Hospital        | 31      | 10       | 17     | 26                   | 84                    | 23                            | 15                   | 18   | 19   | 75   |
| Elsewhere       | -       | 5        | -      | -                    | 5                     | 1                             | 1                    | 1    | 2    | 6    |
|                 | —       | —        | —      | —                    | —                     | —                             | —                    | —    | —    | —    |
| <u>All ages</u> | 83      | 55       | 52     | 54                   | 244                   | 70                            | 44                   | 41   | 55   | 210  |
| <u>Aged 75+</u> | 34      | 22       | 19     | 17                   | 92                    | 29                            | 18                   | 15   | 22   | 84   |

## DEATH RATES ADJUSTED BY COMPARABILITY FACTOR

|                 | 1st. Qr. | 2nd. Qr. | 3rd. Qr. | 4th. Qr. | Year  |
|-----------------|----------|----------|----------|----------|-------|
| Northfleet U.D. |          |          |          |          |       |
| 1958            | 19.0     | 12.5     | 10.2     | 12.3     | 13.8* |
| 1959            | 15.6     | 9.8      | 9.3      | 12.3     | 11.7* |
| England & Wales |          |          |          |          |       |
| 1958            | 14.7     | 11.0     | 9.3      | 11.7     | 11.7  |
| 1959            | 15.8     | 10.6     | 9.0      | 11.1     | 11.6  |

## DEATHS AT AGES 75 AND OVER AS A PERCENTAGE OF DEATHS OF ALL AGES

|      | Northfleet U.D. | Dartford Town | England & Wales |
|------|-----------------|---------------|-----------------|
| 1958 | 38%             | 43%           | 43%             |
| 1959 | 40%             | 43%           | 43%             |

## DEATHS IN HOSPITAL AS A PERCENTAGE OF ALL DEATHS

|      | Northfleet U.D. | Dartford Town |
|------|-----------------|---------------|
| 1958 | 33%             | 60%           |
| 1959 | 36%             | 64%           |

\*These rates differ slightly from those in Table II. This discrepancy is due to the difference between the total number of deaths compiled locally and that compiled by the R.G.

TABLE V - PREVALENCE OF INFECTIOUS DISEASES

Notifiable diseases (other than tuberculosis)

| Disease                           | All<br>ages | Under<br>one | 1-4 | 5-9 | 10-14 | 15-24 | 25-44 | 45-64 | 65+ |
|-----------------------------------|-------------|--------------|-----|-----|-------|-------|-------|-------|-----|
| 1958                              |             |              |     |     |       |       |       |       |     |
| Scarlet fever                     | 13          | -            | 3   | 7   | 3     | -     | -     | -     | -   |
| Whooping cough                    | 6           | -            | 4   | 2   | -     | -     | -     | -     | -   |
| Measles                           | 9           | -            | 6   | 3   | -     | -     | -     | -     | -   |
| Pneumonia                         | 6           | -            | -   | 2   | -     | -     | 1     | 2     | 1   |
| Typhoid                           | 1           | -            | -   | -   | 1     | -     | -     | -     | -   |
| Erysipelas                        | 1           | -            | -   | -   | -     | -     | 1     | -     | -   |
|                                   | 36          | -            | 13  | 14  | 4     | -     | 2     | 2     | 1   |
| 1959                              |             |              |     |     |       |       |       |       |     |
| Scarlet fever                     | 27          | -            | 4   | 17  | 5     | 1     | -     | -     | -   |
| Whooping cough                    | 40          | 2            | 19  | 19  | -     | -     | -     | -     | -   |
| Encephalitis<br>(post-infectious) | 1           | -            | -   | 1   | -     | -     | -     | -     | -   |
| Malaria                           | 1           | -            | -   | 1   | -     | -     | -     | -     | -   |
| Food poisoning                    | 1           | -            | -   | -   | -     | -     | 1     | -     | -   |
| Measles                           | 223         | 2            | 109 | 111 | 1     | -     | -     | -     | -   |
| Pneumonia                         | 12          | -            | -   | 2   | -     | -     | 3     | 4     | 3   |
|                                   | 305         | 4            | 132 | 151 | 6     | 1     | 4     | 4     | 3   |

Distribution of measles by Ward (according to date of notification)

|                  | East | West | South-East | South | Northfleet |
|------------------|------|------|------------|-------|------------|
| 1958             |      |      |            |       |            |
| January/April    | -    | -    | -          | -     | -          |
| May              | -    | -    | 2          | -     | 2          |
| June             | 1    | -    | 2          | -     | 3          |
| July             | -    | 1    | -          | -     | 1          |
| August           | -    | -    | 1          | -     | 1          |
| September        | -    | -    | 2          | -     | 2          |
| October/December | -    | -    | -          | -     | -          |
| Total for year   | 1    | 1    | 7          | -     | 9          |
| 1959             |      |      |            |       |            |
| January          | -    | -    | -          | 1     | 1          |
| February         | 2    | -    | 7          | 14    | 23         |
| March            | 9    | 2    | 33         | 26    | 70         |
| April            | 16   | 12   | 7          | 10    | 45         |
| May              | 8    | 19   | 17         | 7     | 51         |
| June             | 10   | 11   | 5          | -     | 26         |
| July             | 3    | 3    | -          | -     | 6          |
| August           | -    | -    | -          | -     | -          |
| September        | -    | 1    | -          | -     | 1          |
| October/December | -    | -    | -          | -     | -          |
| Total for year   | 48   | 48   | 69         | 58    | 223        |

Non-notifiable diseases

The following non-notifiable diseases were reported from the schools:

|             | 1958 | 1959 |                | 1958 | 1959 |
|-------------|------|------|----------------|------|------|
| Impetigo    | 6    | 2    | Rubella        | 2    | 1    |
| Chicken pox | 48   | 9    | Influenza      | 1    | 1    |
| Mumps       | 99   | 1    | Conjunctivitis | -    | 4    |



TABLE VI - TUBERCULOSIS, 1958 &amp; 1959

## (a) RESPIRATORY

## NOTIFICATIONS IN RECENT YEARS

|      |    |      |    |
|------|----|------|----|
| 1952 | 28 | 1956 | 11 |
| 1953 | 13 | 1957 | 24 |
| 1954 | 19 | 1958 | 5  |
| 1955 | 5  | 1959 | 11 |

## NOTIFICATIONS BY AGE

|         | Total | 0-1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
|---------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-----|
| 1958    |       |     |     |     |       |       |       |       |       |       |       |     |
| Males   | 2     | -   | -   | -   | -     | -     | -     | -     | -     | -     | 1     | 1   |
| Females | 3     | -   | -   | -   | -     | -     | -     | 3     | -     | -     | -     | -   |
|         | 5     | -   | -   | -   | -     | -     | -     | 3     | -     | -     | 1     | 1   |

The 5 new notifications in 1958 included 2 infectious cases, namely a female bank clerk aged 30 and a male charge-hand at a cement works, aged 58. There was no overcrowding in the homes of these cases.

Among the non-infectious cases notified was a female aged 32, from an overcrowded household containing four families of Indians.

|         | Total | 0-1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
|---------|-------|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-----|
| 1959    |       |     |     |     |       |       |       |       |       |       |       |     |
| Males   | 8     | -   | -   | -   | -     | 1     | 1     | 3     | -     | 2     | 1     | -   |
| Females | 3     | -   | -   | -   | -     | -     | 1     | 2     | -     | -     | -     | -   |
|         | 11    | -   | -   | -   | -     | 1     | 2     | 5     | -     | 2     | 1     | -   |

The 11 new notifications in 1959 included 3 infectious cases, all males, 2 of whom were cement workers aged 45 and 57 and the third was a food handler aged 21. This food handler was regarded as no longer infectious after receiving treatment which included surgery and he was allowed to follow his occupation. The brother of this case was also notified in 1959.

Among those notified in 1959 were 2 persons who had one or more relatives notified in previous years and one person who had a daughter and son notified in 1960. One case also suffered from tuberculosis of the spine.

## NUMBER OF CASES OF RESPIRATORY TUBERCULOSIS ON THE REGISTER

|                                | Male | Female | Persons |
|--------------------------------|------|--------|---------|
| Number on register at 31.12.52 | 118  | 81     | 199     |
| -ditto- 31.12.53               | 117  | 81     | 198     |
| -ditto- 31.12.54               | 122  | 83     | 205     |
| -ditto- 31.12.55               | 125  | 85     | 210     |
| -ditto- 31.12.56               | 129  | 83     | 212     |
| -ditto- 31.12.57               | 137  | 88     | 225     |
| -ditto- 31.12.58               | 135  | 95     | 230     |
| -ditto- 31.12.59               | 141  | 99     | 240     |

## CHANGES IN THE REGISTER IN 1958 &amp; 1959 WERE AS FOLLOWS

| Additions:           | 1958 | 1959 | Removals:     | 1958 | 1959 |
|----------------------|------|------|---------------|------|------|
| New notifications    | 5    | 11   | Lost sight of | 1    | -    |
| Came into district   | 20   | 9    | Left district | 9    | 3    |
| Restored to register | -    | -    | Died          | 4    | 3    |
|                      | —    | —    | Recovered     | 6    | 4    |
|                      | 25   | 20   |               | —    | —    |
|                      | —    | —    |               | 20   | 10   |
|                      |      |      |               | —    | —    |

TABLE VI (continued)

## DEATHS

None of the 7 cases removed from the register by death in 1958 and 1959 had a mention of tuberculosis on the certificate of cause of death. One case had bronchitis as a contributory cause of death and another had an old erupted empyema mentioned as a contributory cause. This latter case was one who had long ago declined to co-operate with the Chest Clinic. The deaths of 2 cases were certified as due to cancer of the lung.

In 1959 a death attributed to respiratory tuberculosis was not on our register. The person concerned had two grandsons who had been notified as suffering from tuberculosis but he himself had declined to submit to clinical examination and tuberculosis was first diagnosed when he died from haemoptysis.

## (b) NON-RESPIRATORY

## NOTIFICATIONS IN RECENT YEARS

|      |   |      |   |
|------|---|------|---|
| 1952 | 1 | 1956 | - |
| 1953 | - | 1957 | - |
| 1954 | 1 | 1958 | 1 |
| 1955 | 1 | 1959 | 1 |

The notifications in 1958 and 1959 were females aged 47 and 33 suffering from salpingitis and cervical adenitis, respectively.

## NUMBER OF CASES OF NON-RESPIRATORY TUBERCULOSIS ON THE REGISTER

|                       |          | Male | Female | Persons |
|-----------------------|----------|------|--------|---------|
| Number on register at | 31.12.52 | 14   | 10     | 24      |
| -ditto-               | 31.12.53 | 11   | 9      | 20      |
| -ditto-               | 31.12.54 | 11   | 9      | 20      |
| -ditto-               | 31.12.55 | 10   | 9      | 19      |
| -ditto-               | 31.12.56 | 10   | 11     | 21      |
| -ditto-               | 31.12.57 | 8    | 11     | 19      |
| -ditto-               | 31.12.58 | 8    | 11     | 19      |
| -ditto-               | 31.12.59 | 6    | 12     | 18      |

## CHANGES IN THE REGISTER IN 1958 &amp; 1959 WERE AS FOLLOWS

| Additions:           | 1958 | 1959 | Removals:     | 1958 | 1959 |
|----------------------|------|------|---------------|------|------|
| New notifications    | 1    | 1    | Lost sight of | -    | 1    |
| Came into district   | -    | -    | Left district | -    | -    |
| Restored to register | -    | -    | Died          | -    | -    |
|                      | —    | —    | Recovered     | 1    | 3    |
|                      | 1    | 1    |               | —    | —    |
|                      | —    | —    |               | 1    | 4    |
|                      |      |      |               | —    | —    |

The case removed from the register in 1958 was a male aged 36. The 4 cases removed in 1959 were three males aged 9, 23 and 51, suffering from adenitis, kidney infection and spine infection, and a female aged 20, suffering from cervical adenitis.

## DEATHS

The death assigned to this district in 1958 was due to tuberculosis of the spine and kidneys. We heard of this case in 1956, when information arrived here stating that the case had been admitted to hospital. However, no formal notification had arrived and, therefore, this case was not placed on the register.



TABLE VI (continued)

This sort of omission is no longer likely to happen as we ask the hospital medical officers to comply with their statutory duties of notifying cases on admission, rather than sending informal notes.

The death assigned to this district in 1959 was one which we could not ourselves trace and which we now find is a case from our register of respiratory tuberculosis. The cause of death was originally given as "Cancer of the breast" but subsequent inquiries showed that a post-mortem had been held and that the cause of death was "Abdominal lymph node tuberculosis".

(c) GRAVESEND CHEST CLINIC

CONTACTS, WHOLE AREA (Gravesend, Northfleet, etc.)

|  | 1958  | 1959  |
|--|-------|-------|
| Number of persons examined as contacts:              |       |       |
| Contacts examined for first time                     | 455   | 528   |
| Contacts examined who had attended in previous years | 509   | 525   |
| Contacts re-attended during year                     | 248   | 305   |
|  | <hr/> | <hr/> |
| Total examinations                                   | 1,212 | 1,358 |
|  | <hr/> | <hr/> |
| Examined as contacts of new cases:                   | 139   | 169   |
| Number of contacts found tuberculous:                |       |       |
| Age 0 - 14   | 4     | 2     |
| Over 14  | 3     | 5     |
|  | <hr/> | <hr/> |
|  | 7     | 7     |
|  | <hr/> | <hr/> |

Tuberculin reaction of contacts attending for first time:

| Negative |       |       |  | Positive |       |       |  |
|----------|-------|-------|--|----------|-------|-------|--|
| Age      | 1958  | 1959  |  | Age      | 1958  | 1959  |  |
| 0 - 5    | 60    | 84    |  | 0        | 2     | 1     |  |
| 6 - 14   | 44    | 39    |  | 1 - 3    | 1     | 3     |  |
| 15 - 20  | 21    | 18    |  | 4 - 6    | 2     | 5     |  |
| 21 - 25  | 10    | 13    |  | 7 - 14   | 10    | 9     |  |
| Over 25  | 9     | 23    |  | Over 14  | 47    | 83    |  |
|          | <hr/> | <hr/> |  |          | <hr/> | <hr/> |  |
|          | 144   | 177   |  |          | 62    | 101   |  |
|          | <hr/> | <hr/> |  |          | <hr/> | <hr/> |  |

|                                |      |      |
|--------------------------------|------|------|
| Number of B.C.G. vaccinations: | 1958 | 1959 |
|                                | 164  | 213  |

TABLE VII - VENEREAL DISEASES, ETC.

| NORTHFLEET                |      |        |         |      |        |         |
|---------------------------|------|--------|---------|------|--------|---------|
|                           | 1958 |        |         | 1959 |        |         |
| New patients:             | Male | Female | Persons | Male | Female | Persons |
| Syphilis                  | -    | -      | -       | -    | -      | -       |
| Gonorrhoea                | 4    | 1      | 5       | 3    | -      | 3       |
| Non-venereal              | 23   | 4      | 27      | 9    | 4      | 13      |
| ALL AREA SERVED BY CLINIC |      |        |         |      |        |         |
| Discharged cured:         |      |        |         |      |        |         |
| Syphilis                  | 2    | 6      | 8       | 3    | 3      | 6       |
| Gonorrhoea                | 25   | 16     | 41      | 24   | 19     | 43      |
| Non-venereal              | 117  | 30     | 147     | 147  | 41     | 188     |

TABLE VIII - VACCINATIONS

(a) DIPHTHERIA

## INOCULATIONS EACH YEAR

|      | Age at 31st<br>December | Primary inoculations<br>done in the year | Reinforcing inoculations<br>done in the year |
|------|-------------------------|--|--|
| 1959 | 0- 4 years              | 250                                      | 20   |
|      | 5-14 years              | 4  | 153  |
| 1958 | 0- 4 years              | 266                                      | 21   |
|      | 5-14 years              | 5  | 147  |
| 1957 | 0- 4 years              | 199                                      | 14   |
|      | 5-14 years              | 31                                       | 286  |
| 1956 | 0- 4 years              | 230                                      | 30   |
|      | 5-14 years              | 40                                       | 437  |
| 1955 | 0- 4 years              | 276                                      | 27   |
|      | 5-14 years              | 15                                       | 162  |

PERCENTAGE OF CHILDREN WITH EFFECTIVE IMMUNITY - Immunisation is effective for about five years and then requires to be reinforced. Assuming the child population to be 1,850 at 0-4 years, 3,000 at 5-14 years, i.e. 4,850 at 0-14 years, the following percentages of children immune are calculated:-

| December 31st | Age group  | Vaccinated<br>at any time | Vaccinated in<br>last 5 years | Percentage<br>children immune |
|---------------|------------|---------------------------|-------------------------------|-------------------------------|
| 1959          | 0- 4 years | 935                       | 935                           | 51%                           |
|               | 5-14 years | <u>2,828</u><br>3,753     | <u>1,540</u><br>2,475         | <u>51%</u><br>51%             |
| 1958          | 0- 4 years | 967                       | 967                           | 52%                           |
|               | 5-14 years | <u>2,661</u><br>3,628     | <u>1,591</u><br>2,558         | <u>53%</u><br>53%             |
| 1957          | 0- 4 years | 964                       | 964                           | 52%                           |
|               | 5-14 years | <u>2,536</u><br>3,500     | <u>1,500</u><br>2,464         | <u>50%</u><br>51%             |
| 1956          | 0- 4 years | 997                       | 997                           | 54%                           |
|               | 5-14 years | <u>2,362</u><br>3,359     | <u>1,432</u><br>2,429         | <u>48%</u><br>50%             |
| 1955          | 0- 4 years | 1,038                     | 1,038                         | 56%                           |
|               | 5-14 years | <u>2,070</u><br>3,108     | <u>1,256</u><br>2,294         | <u>43%</u><br>48%             |

INFANT VACCINATION RATE - Percentage of those born in a given year who were vaccinated in that year or the next:-

| Year of birth | Number of<br>live births | Year<br>vaccinated | Number<br>vaccinated | %  | Total | %  |
|---------------|--------------------------|--------------------|----------------------|----|-------|----|
| 1959          | 356                      | 1959               | 79                   | 22 | ?     | ?  |
|               |                          | 1960               | ?                    | ?  |       |    |
| 1958          | 349                      | 1958               | 52                   | 15 | 202   | 58 |
|               |                          | 1959               | 150                  | 43 |       |    |
| 1957          | 342                      | 1957               | 31                   | 9  | 206   | 60 |
|               |                          | 1958               | 175                  | 51 |       |    |
| 1956          | 303                      | 1956               | 24                   | 8  | 167   | 55 |
|               |                          | 1955               | 143                  | 47 |       |    |
| 1955          | 300                      | 1955               | 30                   | 10 | 206   | 69 |
|               |                          | 1956               | 176                  | 59 |       |    |



TABLE VIII (continued)

## INFANT VACCINATION RATE (Continued) (Diphtheria) - By age when vaccinated.

In 1958 there were 349 live births. In 1959 202 infants were vaccinated at the age of under one year giving the percentage of 58%

## COMPARISON WITH OTHER AREAS

|  | Northfleet<br>Urban Dist. | Dartford<br>Borough | Kent<br>A.C. | England &<br>Wales |
|--|---------------------------|---------------------|--------------|--------------------|
| Percentage of those born in 1957<br>vaccinated in 1957 or 1958                               | 60%                       | 64%                 | 60%          | -                  |
| Percentage of those born in 1958<br>vaccinated in 1958 or 1959                               | 58%                       | 68%                 | 60%          | -                  |
| Percentage of children under 15<br>years vaccinated in the 5 years<br>ended 31.12.58.        | 53%                       | 51%                 | 50%          | -                  |
| 31.12.59.  | 51%                       | 50%                 | 47%          | -                  |
| Percentage vaccinated at any time<br>in their life of children under<br>5 years on 31.12.58. | 52%                       | 56%                 | 54%          | 54%                |
| 31.12.59.  | 51%                       | 60%                 | 55%          | 56%                |

## VACCINATION DONE BY GENERAL PRACTITIONERS AND CLINICS

Children aged under one year at  
completion of primary vaccination

|                            | Vaccinated<br>by general<br>practitioners | Vaccinated<br>at clinics | Total | Percentage<br>vaccinated<br>at clinics |
|----------------------------|---|--------------------------|-------|--|
| Borough of Dartford        | 264                                       | 184                      | 448   | 41%                                    |
| Rural District of Dartford | 237                                       | 347                      | 584   | 59%                                    |
| Northfleet Urban District  | 75  | 127                      | 202   | 62%                                    |
| Swanscombe Urban District  | 42  | 46                       | 88    | 52%                                    |

## (b) SMALLPOX

## Numbers vaccinated:

|      |              | Age at December 31st |       |        |
|------|--------------|----------------------|-------|--------|
|      |              | Under 1              | 1 - 4 | 5 - 14 |
| 1959 | Vaccinated   | 115                  | 121   | 7      |
|      | Revaccinated | -                    | 2     | 1      |
| 1958 | Vaccinated   | 116                  | 112   | 5      |
|      | Revaccinated | -                    | -     | 4      |
| 1957 | Vaccinated   | 119                  | 83    | 12     |
|      | Revaccinated | -                    | 2     | 2      |
| 1956 | Vaccinated   | 142                  | 78    | 4      |
|      | Revaccinated | -                    | -     | 4      |
| 1955 | Vaccinated   | 162                  | 92    | 2      |
|      | Revaccinated | -                    | 1     | 2      |

TABLE VIII (continued)

## INFANT VACCINATION RATE (Continued) (Smallpox)

Percentage of those born in a given year who were vaccinated in that year or the next:

| Year of birth | Number of<br>live births | Year<br>vaccinated | Number<br>vaccinated | %  | Total | %  |
|---------------|--------------------------|--------------------|----------------------|----|-------|----|
| 1959          | 356                      | 1959               | 115                  | 32 | ?     | ?  |
|               |                          | 1960               | ?                    | ?  |       |    |
| 1958          | 349                      | 1958               | 116                  | 33 | 232   | 66 |
|               |                          | 1959               | 116                  | 33 |       |    |
| 1957          | 342                      | 1957               | 119                  | 35 | 223   | 65 |
|               |                          | 1958               | 104                  | 30 |       |    |
| 1956          | 303                      | 1956               | 142                  | 47 | 214   | 71 |
|               |                          | 1957               | 72                   | 24 |       |    |
| 1955          | 300                      | 1955               | 162                  | 54 | 237   | 79 |
|               |                          | 1956               | 75                   | 25 |       |    |

## Vaccination by age at date of vaccination:

|      | Number of<br>live births | Number vaccinated by<br>age at date of vaccination |       |        | Percentage of<br>births of those<br>vaccinated<br>under one year |
|------|--------------------------|--|-------|--------|--|
|      |                          | Under 1  | 1 - 4 | 5 - 14 |  |
| 1959 | 356                      | 226  | 15    | 6      | 64%  |

## VACCINATION DONE BY GENERAL PRACTITIONERS AND CLINICS 1959

|                                       | Age at date of vaccination |           |          |            |
|---------------------------------------|----------------------------|-----------|----------|------------|
|                                       | Under 1                    | 1-4       | 5-14     | 15 or over |
| Vaccinated by general practitioners   | 73                         | 9         | 5        | 4          |
| Vaccinated by clinics                 | 153                        | 6         | 1        | -          |
|                                       | <u>226</u>                 | <u>15</u> | <u>6</u> | <u>4</u>   |
| Revaccinated by general practitioners | -                          | -         | -        | 4          |
| Revaccinated by clinics               | -                          | -         | -        | -          |

## Percentage vaccinated by clinics at age of under 1 year:

|                  |     |                 |     |           |     |
|------------------|-----|-----------------|-----|-----------|-----|
| Dartford R.D.    | 62% | Northfleet U.D. | 67% | Kent A.C. | 53% |
| Dartford Borough | 58% | Swanscombe U.D. | 70% |           |     |

## COMPARISON WITH OTHER AREAS

|  | Northfleet<br>U.D. | Dartford<br>Borough | Kent A.C. | England &<br>Wales |
|--|--------------------|---------------------|-----------|--------------------|
| Percentage of those<br>born in 1957 vaccinated<br>in 1957 or 1958                  | 65%                | 61%                 | 60%       | -                  |
| Percentage of those<br>born in 1958 vaccinated<br>in 1958 or 1959                  | 66%                | 62%                 | 60%       | -                  |
| Percentage of 1958 births<br>of those vaccinated in<br>1958 at age of under 1 year | -                  | 52%                 | 53%       | 45%                |
| Percentage of 1959 births<br>of those vaccinated in<br>1959 at age of under 1 year | 64%                | 62%                 | 55%       | 45%                |



TABLE VIII (continued)

## REVACCINATION - At school age (Smallpox)

The number of children due each year for revaccination in school life (assuming only one revaccination during that period) is roughly the number of infant vaccinations done five years previously and the percentage re-vaccinated is shown by the following calculations:

|   | Northfleet<br>U.D. | Dartford<br>Borough | Kent A.C. | England &<br>Wales |
|---|--------------------|---------------------|-----------|--------------------|
| Infants born in 1953<br>vaccinated in 1953 or 1954    | 243                | 380                 | 13,845    | 231,200            |
| Children aged 5-14<br>revaccinated in 1958            | 4                  | 10                  | 354       | 13,569             |
| Percentage of possible<br>number revaccinated in 1958 | 2%                 | 3%                  | 3%        | 6%                 |
| Infants born in 1954<br>vaccinated in 1954 or 1955    | 247                | 340                 | 13,967    | 234,587            |
| Children aged 5-14<br>revaccinated in 1959            | 1                  | 8                   | 285       | 10,228             |
| Percentage of possible<br>number revaccinated in 1959 | 0%                 | 2%                  | 2%        | 4%                 |

## (c) POLIOMYELITIS

The following table gives the number of children who received a course of injections against poliomyelitis during the years ended 31st December, 1958 and 1959:

| Year of birth | 1958                           |                               | 1959                           |                               |
|---------------|--------------------------------|-------------------------------|--------------------------------|-------------------------------|
|               | No. of<br>second<br>injections | No. of<br>third<br>injections | No. of<br>second<br>injections | No. of<br>third<br>injections |
| 1959          | -                              | -                             | 22                             | -)                            |
| 1958          | 28                             | -)                            | 210                            | 116)                          |
| 1957          | 200                            | 15)                           | 68                             | 194)                          |
| 1956          | 204                            | 30)                           | 32                             | 142)                          |
| 1955          | 206                            | 38)                           | 21                             | 160)                          |
| 1954          | 210                            | 28)                           | 31                             | 202)                          |
| 1953          | 172                            | 18)                           | 37                             | 178)                          |
| 1952          | 153                            | 18)                           | 30                             | 176)                          |
| 1951          | 160                            | 21)                           | 43                             | 184)                          |
| 1950          | 105                            | 19)                           | 31                             | 185)                          |
| 1949          | 91                             | 24)                           | 34                             | 167)                          |
| 1948          | 91                             | 18)                           | 48                             | 212)                          |
| 1947          | 108                            | 24)                           | 42                             | 234)                          |
| 1946          | 280                            | 3)                            | 31                             | 224)                          |
| 1945          | 183                            | 2)                            | 26                             | 137)                          |
| 1944          | 178                            | 2)                            | 36                             | 127)                          |
| Others        | 260                            | 3                             | 891                            | 447                           |
| Total         | 2,629                          | 263                           | 1,633                          | 3,085                         |

Percentage of children with three vaccinations 31.12.58. = 5%  
31.12.59. = 62%



TABLE VIII (continued)

## (d) WHOOPING COUGH

The following table gives the number of children who received a primary vaccination against whooping cough during the years ended 31st December, 1958 and 1959:

| Year of birth | 1958  | 1959  |
|---------------|-------|-------|
| 1959          | -     | 130   |
| 1958          | 113   | 106   |
| 1957          | 162   | 16    |
| 1956          | 24    | 3     |
| 1955          | 6     | 4     |
| 1954          | 4     | 1     |
| 1953          | -     | 1     |
| 1952          | 3     | -     |
| 1951          | -     | -     |
| 1950          | -     | -     |
| 1949          | 1     | -     |
| 1948          | -     | -     |
| 1947          | 1     | -     |
| 1946          | -     | -     |
| 1945          | -     | -     |
| 1944          | -     | -     |
| Before 1944   | -     | -     |
|               | <hr/> | <hr/> |
| Total         | 314   | 261   |
|               | <hr/> | <hr/> |

## INFANT VACCINATION RATE

Percentage of those born in a given year who were vaccinated in that year or the next:

| Year of birth | Number of<br>live births | Year<br>vaccinated | Number<br>vaccinated | %  | Total | %  |
|---------------|--------------------------|--------------------|----------------------|----|-------|----|
| 1958          | 349                      | 1958               | 113                  | 33 | 219   | 63 |
|               |                          | 1959               | 106                  | 30 |       |    |
| 1959          | 356                      | 1959               | 130                  | 37 | ?     | ?  |
|               |                          | 1960               | ?                    | ?  |       |    |

# ENVIRONMENTAL MATTERS

## I - HOUSING

NEW HOUSES: The following dwellings have been completed in the last eleven years:-

|       | Council      | Private Enterprise | Total        |
|-------|--------------|--------------------|--------------|
| 1949  | 64           | 9                  | 73           |
| 1950  | 91           | 22                 | 113          |
| 1951  | 142          | 13                 | 155          |
| 1952  | 116          | 18                 | 134          |
| 1953  | 105          | 24                 | 129          |
| 1954  | 120          | 37                 | 157          |
| 1955  | 70           | 65                 | 135          |
| 1956  | 88           | 88                 | 176          |
| 1957  | 109          | 68                 | 177          |
| 1958  | 108          | 51                 | 159          |
| 1959  | 140          | 236                | 376          |
| Total | <u>1,153</u> | <u>631</u>         | <u>1,784</u> |

HOUSING PROVIDED BY COUNCIL: At the end of March in the years 1958 and 1959, the waiting list of housing applicants was as follows:-

|      | Young and Middle-aged | Aged |
|------|-----------------------|------|
| 1958 | 929                   | 140  |
| 1959 | 684                   | 184  |

The families rehoused by the Council during the years ending in March have been as follows:-

|      |     |
|------|-----|
| 1958 | 144 |
| 1959 | 151 |

In these two years the following numbers of Council tenants were transferred to accommodation more suitable to their requirements:-

|      |    |
|------|----|
| 1958 | 37 |
| 1959 | 18 |

HOUSING PRIORITY ON MEDICAL GROUNDS: In 1958 and 1959 there was no precise scheme for the purpose of allocating priority in rehousing on medical grounds.

IMPROVEMENTS: In 1958, 12 applications for improvement grants under the Housing Acts were received relating to 13 houses. The total value of the grants approved was £2,361.

In 1959, 33 applications for improvement grants under the Housing Acts were received relating to 34 houses. The total value of the grants approved was £5,626.

In 1958, improvement work with the aid of a grant was completed in 11 houses, with a total grant of £1,875.

In 1959, improvement work with the aid of a grant was completed in 19 houses, with a total grant of £3,645.



# HOUSING (continued)

## UNFIT HOUSES MADE FIT

|  | By Owner |      | By Local Authority |      |
|--|----------|------|--------------------|------|
|  | 1958     | 1959 | 1958               | 1959 |
| After informal action by local authority         | 119      | 103  | -                  | -    |
| After formal notice under (a) Public Health Acts | 37       | 14   | -                  | -    |
| (b) Sections 9 and 16<br>Housing Act, 1957       | -        | -    | -                  | -    |
| Under Section 24, Housing Act, 1957              | -        | -    | -                  | -    |

REPAIRS: The following are the details of repairs initiated by the Council's Public Health Inspectors:-

|   | 1958 | 1959 |
|---|------|------|
| Ceilings repairs or renewed   | 16   | 15   |
| Walls, brickwork damp-proofed                                       | 75   | 42   |
| Walls, internal, plaster repaired                                   | 34   | 31   |
| Doors and frames repaired or renewed                                | 8    | 10   |
| Firegrates repaired or renewed                                      | 15   | 6    |
| Floors repaired or relaid   | 17   | 13   |
| Windows, woodwork of frames, sashes or sills<br>repaired or renewed | 34   | 42   |
| Sash lines provided   | 6    | 25   |
| Chimney flues repaired  | 4    | 2    |
| Sinks repaired or renewed   | -    | 7    |
| Water supply, pipes, etc., repaired                                 | 1    | 2    |
| Water-closets:  |      |      |
| External structure repaired   | 5    | 10   |
| Internal structure repaired   | 2    | 6    |
| Flushing cistern repaired or renewed                                | 6    | 8    |
| Pedestal pan and traps repaired or renewed                          | 3    | 6    |
| Roofs repaired  | 29   | 32   |
| Rain-water pipes repaired or renewed                                | 7    | 3    |
| Eaves gutters repaired or renewed                                   | 15   | 7    |
| Walls, external, repaired   | 1    | 2    |
| Yard surfaces repaired or relaid                                    | 3    | 3    |
| Dustbins provided   | 171  | 120  |
| Fences repaired or renewed  | 1    | 2    |

RENT ACT, 1957: The following certificates have been received and issued:-

|   |    |   |
|---|----|---|
| Applications received for Certificates of Disrepair                             | 32 | 9 |
| Notices issued to landlords (Form J)  | 32 | 9 |
| Undertakings received from landlords (Form K)                                   | 29 | 6 |
| Certificates of Disrepair issued  | 3  | 2 |
| Applications received for cancellation of<br>Certificates of Disrepair (Form M) | 9  | 3 |
| Certificates of Disrepair cancelled   | 7  | 3 |
| Certificates issued as to remedying defects (Form P)                            | 1  | - |

## OVERCROWDING

Proceedings to abate statutory overcrowding:

1958 - Nil

1959 - Nil



# HOUSING (continued)

## HOUSES DEMOLISHED - HOUSING ACT, 1957.

|   | Houses<br>demolished |      |
|---|----------------------|------|
|   | 1958                 | 1959 |
| In Clearance Areas: (Housing Act, 1957) |                      |      |
| Houses unfit                            | 16                   | 41   |
| Not in Clearance Areas:                 |                      |      |
| As a result of action<br>under sec. 17  | 5                    | 1    |
| Unfit Houses Closed:                    |                      |      |
| Under secs. 16 & 17 etc.                | -                    | 2    |

## ADDRESSES OF HOUSES DEMOLISHED

| 1958 | Clearance Areas:  | Section 17, etc.              |
|------|---|-------------------------------|
|      | Buckingham Road, 2, 3, 4, 5 and 6                                 | Granby Road, 9                |
|      | The Hill, 17, 18, 19, 20, 20a,<br>21, 22 and 23                   | Little Frazier Place, 5 and 6 |
|      | Hive Lane, 6  | Northfleet Green, Farmhouse   |
|      | Shepherd Street, 122 and 124                                      | Old Perry Street, 27          |
| 1959 |   |                               |
|      | Buckingham Road, 34, 35, 36, 37,<br>38, 53, 54, 55, 56, 58 and 59 | Nash Street, 3 and 4          |
|      | Hive Lane, 1, 2, 3, 4 and 5                                       | Buckingham Road, 1            |
|      | Ida Cottages, 1, 2, 3, 4, 5, 6, 7,<br>8, 9, 10, 11 and 12         |                               |
|      | Vale Road, 84, 86, 88, 90, 92, 94,<br>96 and 98                   |                               |

## PERSONS DISPLACED IN 1958 and 1959 PRIOR TO DEMOLITION OF HOUSES

|                                       | Displaced                    |                            | Families |      |
|---------------------------------------|------------------------------|----------------------------|----------|------|
|                                       | Persons<br>1958              | Persons<br>1959            | 1958     | 1959 |
| In Clearance Areas:                   |                              |                            |          |      |
| Houses unfit                          | (106 adults<br>( 31 children | (43 adults<br>(12 children | 47       | 20   |
| Not in Clearance Areas:               |                              |                            |          |      |
| As a result of<br>action under Sec.17 | -                            | (12 adults<br>( 3 children | -        | 5    |

CARAVANS. The following are the details of licences issued during 1958 and 1959 under Section 269, Public Health Act, 1936:

|  | 1958 | 1959 |
|--|------|------|
| Number of annual licences granted authorising<br>the use of moveable dwellings                     | 6    | 6    |
| Number of licences authorising persons to allow<br>land to be used as sites for moveable dwellings | -    | -    |
| Number of applications to station and use<br>moveable dwellings refused                            | -    | -    |
| Number of unlicensed caravans removed during<br>the year   | -    | -    |

In addition to the above 4 showman caravans not requiring licences have been stationed in the district in these two years.

## II - WATER

SOURCES OF SUPPLY AND ACCESSIBILITY. All the houses in Northfleet have an internal piped supply from the mains of the Medway Water Board. Within Northfleet Urban District are two of the Board's pumping stations contributing to the supply of this and neighbouring districts. This supply is chlorinated and dechlorinated at source. All industries use the Board's supply for drinking purposes but two industries use other sources for industrial purposes.

QUANTITY. The supply has always been sufficient for domestic and drinking purposes.

QUALITY. In the following analyses the number of E. coli type 1 per 100 ml. in the bacteriological analyses and albuminoid ammonia in parts per million in the chemical analyses are used to summarise the results of sampling.

### Bacteriological Analyses

| <u>Samples by Medway<br/>Water Board</u> | 1958              |                   | 1959              |                   |
|--|-------------------|-------------------|-------------------|-------------------|
|  | No. of<br>Samples | E. coli<br>type 1 | No. of<br>Samples | E. coli<br>type 1 |
| Hazells Pumping Station                  |                   |                   |                   |                   |
| Raw water:                               | 22                | None              | 2                 | None              |
|  | 1                 | 2                 |                   |                   |
| Treated water:                           | 32                | None              | 32                | None              |
| Northfleet Pumping Station               |                   |                   |                   |                   |
| Raw water:                               | 80                | None              | 8                 | None              |
|  | 10                | 1 to 5            |                   |                   |
|  | 1                 | 35                |                   |                   |
| Treated water:                           | 47                | None              | 44                | None              |

### Samples by the Council's Public Health Inspectors

|  |    |        |                  |      |
|--|----|--------|------------------|------|
| Hazells Pumping Station                |    |        |                  |      |
| Raw water:                             | 2  | None   | No samples taken |      |
| Treated water:                         | 4  | None   | No samples taken |      |
| Northfleet Pumping Station             |    |        |                  |      |
| Raw water:                             | 18 | None   | 20               | None |
|  | 4  | 1 to 5 |                  |      |
|  | 1  | 50     |                  |      |
| Treated water:                         | 14 | None   | 11               | None |
| Consumers' Premises<br>(Treated water) | 6  | None   | 12               | None |

### Chemical Analyses

#### Samples taken by Council's Public Health Inspectors from consumers' premises

| No. of Samples | Albuminoid Ammonia | Temporary Hardness | Total Hardness |
|----------------|--------------------|--------------------|----------------|
| 1958           | 1                  | None               | 235            |
| 1959           | 1                  | 0.06               | 250            |

### SWIMMING POOL

One open air pool opened at Shears Green County Primary School in June, 1958, but no samples were taken by this office.



### III - DRAINAGE

At the end of 1959 all houses in Northfleet Urban District were on main drainage, with the exception of 305 houses drained to cesspools or septic tanks in the New Barn, Istead Rise and Durndale Lane areas and two houses on chemical closets. There are no pail closets or privies in this district.

All houses within accessible distance to the sewer are being connected thereto at the Council's expense. Most of the 159 new houses in 1958 and 376 in 1959 were connected to the sewer.

The effluent from the Council's outfall works was sampled on the following occasions. There was difficulty in interpreting the results owing to flooding and sampling was discontinued in the middle of 1958. A summary of the results is as follows:-

| Date    | Albuminoid Ammonia<br>p.p.m. | Oxygen Absorbed in 4 hours<br>p.p.m. | H <sub>2</sub> S |
|---------|------------------------------|--------------------------------------|------------------|
| 12.2.58 | 4                            | 28                                   | not detected     |
| "       | 4                            | 33                                   | " "              |
| 17.3.58 | 6                            | 32                                   | " "              |
| "       | 4                            | 19.5                                 | " "              |
| 16.4.58 | 2                            | 39                                   | " "              |
| "       | 3                            | 23                                   | " "              |
| 15.5.58 | 5                            | 36                                   | " "              |
| "       | 3                            | 35                                   | " "              |
| 17.6.58 | 3                            | 25.6                                 | " "              |
| "       | 5                            | 21.6                                 | " "              |
| 25.7.58 | 1.5                          | 14.8                                 | " "              |
| "       | 1.9                          | 16                                   | " "              |

The Kent River Board sampled the effluent from the works, with the following results:-

|         |     |    |            |
|---------|-----|----|------------|
| 9.1.58  | 4.2 | 28 | not stated |
| 21.1.58 | 6.6 | 51 | " "        |
| "       | 3.8 | 30 | " "        |
| "       | 5.9 | 39 | " "        |

The following are the details of the work initiated by the Council's Public Health Inspectors during 1958 and 1959:-

|  | 1958 | 1959 |
|--|------|------|
| Drains repaired or reconstructed                   | 6    | 9    |
| Drains cleared                                     | 10   | 4    |
| Gully traps repaired or renewed                    | 1    | 2    |
| Drainage works inspected                           | 90   | 98   |
| Tests applied to drains (excluding Council houses) | 175  | 193  |

The number of occasions on which cesspools were emptied by the Council were 291 in 1958 and 325 in 1959.

There are 299 houses drained to cesspools, but the number of cesspools is only 264 as some houses share their cesspool with neighbouring houses. There are 88 cesspools known to us which never require emptying.

At the end of 1959 the sanitary accommodation and drainage was approximately as follows:-

|   |              |
|---|--------------|
| Dwellings with water-closets discharging into the sewer | 6,424        |
| " " " " " into septic tanks                             | 6            |
| " " " " " into cesspools                                | 299          |
| TOTAL (i.e. number of dwellings at 31st March, 1960)    | <u>6,729</u> |



## IV - FOOD

MILK: Regulations require this Council to register (i) dairies not being dairy farms and (ii) distributors, i.e. dairymen other than dairy farmers. The Council also have the duty to grant or refuse to grant, dealers' licences to distributors authorising the use of a special designation in relation to milk sold from premises in this district. Those holding dealers' licences for trade from premises outside this district can be granted supplementary licences authorising them to use a designation in relation to milk sold in this district.

The following are the figures for registrations and licences during recent years, the distributor mentioned is one whose premises are within this district.

| district.                   | 1956 | 1957 | 1958 | 1959 |
|-----------------------------|------|------|------|------|
| Distributors registered     | 1    | 1    | 1    | 1    |
| Dairies registered          | 1    | 1    | 1    | 1    |
| Dealers' licences for:      |      |      |      |      |
| Tuberculin tested milk      | 1    | 1    | 1    | 1    |
| Pasteurised milk            | 4    | 3    | 4    | 5    |
| Sterilised milk             | 32   | 28   | 40   | 39   |
| Supplementary licences for: |      |      |      |      |
| Tuberculin tested milk      | 3    | 2    | 2    | 2    |
| Pasteurised milk            | 6    | 5    | 4    | 4    |
| Sterilised milk             | 5    | 5    | 5    | 5    |

Sampling for designation or infection tests:

41 samples in 1958 and 44 in 1959 were submitted to the County Laboratory for designation tests and none for infection tests.

| <u>Grade of Milk</u>               | <u>Samples Satisfactory</u> |      | <u>Samples Unsatisfactory</u> |      |
|------------------------------------|-----------------------------|------|-------------------------------|------|
|                                    | 1958                        | 1959 | 1958                          | 1959 |
| Tuberculin tested                  | -                           | -    | -                             | -    |
| Tuberculin tested<br>(Pasteurised) | -                           | -    | -                             | -    |
| Pasteurised                        | 35                          | 29   | 5                             | 7    |
| Sterilised                         | 1                           | 1    | -                             | -    |

In 1958 the five failures were failures to pass the phosphatase test for pasteurisation.

In 1959 two were failures to pass the phosphatase test and five were failures to pass the methylene blue test for cleanliness. In addition, seven samples were void as atmospheric shade temperature exceeded 65°F.

The Council's Chief Public Health Inspector received an unopened bottle of school milk in which a horse-chestnut was found. Due warnings were given to the dairy owner concerned.

### Sampling for Adulteration:

29 samples of milk were taken by the County Sampling Officers in Northfleet Urban District in 1958 and 38 samples were taken in 1959. A report supplied by the County Chief Inspector of Weights and Measures shows that all these samples were genuine.

ICE CREAM:

| ICE CREAM:   | Prior to '58 | 1958 | 1959 |
|--|--------------|------|------|
| Premises registered for the sale of ice cream        | 49           | 6    | 7    |
| Premises registered for the manufacture of ice cream | Nil          | Nil  | Nil  |
| Premises removed from register                       |              | 1    | 3    |

# FOOD (continued)

## ICE CREAM (continued)

37 samples were obtained and examined for cleanliness by the methylene blue test in 1958 and 43 in 1959.

|           | 1958      | 1959      |
|-----------|-----------|-----------|
| Grade I   | 29        | 25        |
| Grade II  | 7         | 13        |
| Grade III | 1         | 5         |
| Grade IV  | -         | -         |
|           | <u>37</u> | <u>43</u> |

Two samples of ice cream were taken by the County Sampling Officers in 1958 and 3 in 1959, and were reported on as genuine, i.e. had a fat content of not less than 5% fat, 10% sugar not derived from milk and 7.5% milk solids other than fat.

## MEAT:

One slaughterman was licensed in 1958 and one in 1959. However, there are no slaughterhouses in this district and no meat inspection immediately after slaughtering is therefore necessary.

The following meat was surrendered as unfit for human consumption from shops:-

|             | 1958     | 1959    |
|-------------|----------|---------|
| Bacon       | 87 lbs.  | Nil     |
| Meat        | 82 lbs.  | 8 lbs.  |
| Canned meat | 107 lbs. | 18 lbs. |

## OTHER FOODS:

The following was surrendered from shops etc., as unfit for human consumption:-

|              | 1958    | 1959        |
|--------------|---------|-------------|
| Canned fruit | 70 lbs. | 61 lbs.     |
| " milk       | -       | 1 lb.       |
| " vegetables | 5 lbs.  | 11 lbs.     |
| " fish       | -       | 2 lbs.      |
| " soup       | 2 lbs.  | 2 lbs.      |
| Potatoes     | -       | 31,800 lbs. |

## Sampling for Genuineness:

In addition to the samples of milk and ice cream mentioned above the County Sampling Officers took the following samples:-

|               | 1958      | 1959      |
|---------------|-----------|-----------|
| Drugs         | 10        | 6         |
| Spirits       | 5         | 5         |
| Other samples | 29        | 27        |
|               | <u>44</u> | <u>38</u> |



## FOOD (continued)

### Sampling for Genuineness (continued)

In 1958 all samples were genuine, with the exception of the following:-

| <u>Sample of</u>        | <u>Analysis</u>   | <u>Action taken</u>  |
|-------------------------|---|--|
| Acetone<br>B.P.C.       | Does not comply with B.P.C. for residue on evaporation, water insoluble matter and oxidisable substances. Probably due to action of contents on stopper.                        | Correspondence with the makers confirmed this. Steps have now been taken by them to prevent a recurrence of the trouble. |
| Processed<br>Cheese     | Chedlet 25.8% Fat (= 49.2% on dry), Moisture 47.6%; Cheshire 21.6% Fat (= 42.3% on dry), Moisture 49.2%. Fat should be not less than 48% on dry and moisture not more than 42%. | Makers notified. Deficiency to be corrected.   |
| Mixed<br>Dried<br>Fruit | Clean, SO <sub>2</sub> absent. Currants 62, sultanas 52, peel 3 grms. On this sample therefore the label order is incorrect.  | Label gave proportional order of ingredients as sultanas, currants. Packers notified.                                    |

In 1959 all 38 samples were genuine.

### FOOD HYGIENE:

467 visits in 1958 and 425 in 1959, were made to food preparation premises by the Council's Public Health Inspectors with a view to ensuring that the premises complied with the Food Hygiene Regulations. Mobile food vehicles were also inspected.

4 bakehouses operate within this district and all have been subject to periodic inspection by the Council's Public Health Inspectors. Of these 4 bakehouses 2 are classified as underground bakehouses under the Factories Act, 1937, and consequently, we have a duty to inspect them every five years to ensure that they are suitable for such use. In 1958 both underground bakehouses were inspected by the Council's Public Health Inspectors and certificates of suitability were issued, in one case subject to extensive improvements being carried out.

# V - DISINFECTION, DISINFESTATION & RODENT CONTROL

## DISINFECTION

Northfleet Urban District Council have an arrangement with Strood Rural District Council and Swanscombe Urban District Council whereby facilities for disinfection and disinfestation of premises and articles are provided by us on a rechargeable basis. Transport for the articles is provided by Northfleet.

This service is now used less than formerly. In 1958 and 1959 these facilities were used for the following cases:-

|               | Northfleet |      | Swanscombe |      | Strood |      |
|---------------|------------|------|------------|------|--------|------|
|               | 1958       | 1959 | 1958       | 1959 | 1958   | 1959 |
| Scarlet fever | 2          | 8    | -          | -    | 2      | -    |
| Tuberculosis  | 5          | 4    | 1          | 1    | 1      | -    |
| Scabies       | 1          | -    | -          | -    | -      | -    |
| Typhoid       | 1          | -    | -          | -    | -      | -    |

## DISINFESTATION

The following were the number of occasions when advice was given or disinfestation carried out:-

|                               | 1958 | 1959 |
|-------------------------------|------|------|
| Beetles                       | 4    | -    |
| Bed bugs                      | 2    | 4    |
| Wasps                         | 3    | 12   |
| Cockroaches                   | -    | 2    |
| Maggots and flies             | 1    | 4    |
| Crickets                      | -    | 3    |
| Ants                          | 1    | -    |
| Bees                          | 1    | -    |
| Filthy and verminous premises | 4    | 16   |

RODENT CONTROL - The following infested properties were treated:-

|  | 1958         | 1959         |
|--|--------------|--------------|
| Properties inspected:                          |              |              |
| Local authority                                | 1            | 117          |
| Dwelling houses                                | 695          | 472          |
| Other premises                                 | 348          | 419          |
|  | <u>1,044</u> | <u>1,008</u> |
| Properties found with minor rat infestations:  |              |              |
| Local authority                                | 1            | -            |
| Dwelling houses                                | 53           | 86           |
| Other premises                                 | 6            | 9            |
|  | <u>60</u>    | <u>95</u>    |
| Properties found with minor mice infestations: |              |              |
| Local authority                                | -            | -            |
| Dwelling houses                                | 7            | 10           |
| Other premises                                 | 3            | -            |
|  | <u>10</u>    | <u>10</u>    |

In 1958 there was one bat infestation.



## VI - PUBLIC CLEANSING

The Council's Public Cleansing Service is under the direction of the Council's Chief Public Health Inspector.

The following amounts of refuse were collected and disposed of:-

|      |             |
|------|-------------|
| 1958 | 8,892 tons  |
| 1959 | 10,081 tons |

The following were the number of occasions on which cesspools were emptied:-

|      |     |
|------|-----|
| 1958 | 291 |
| 1959 | 325 |

### JOINT CONTROLLED TIPPING SCHEME

Progress was made with the Joint Tipping Scheme during 1958 and 1959.

In 1959 Swanscombe Urban District Council joined in the use of this controlled tip, which now means that this tip serves Gravesend Borough and Northfleet and Swanscombe Urban District Councils, a total population of 76,000. It is also used by one of the large factories for tipping their flue dust.

The approach road from Vale Road was surfaced and the frontage with Vale Road was grassed and provided with rose beds. The access from Brookvale Depot to the tip was also improved.

### COST (From Abstract of Accounts 1958 - 1959)

|                                   | Expenditure<br>£ | Income<br>£ |
|-----------------------------------|------------------|-------------|
| Cesspool emptying                 | 1,164            | 119         |
| House and trade refuse collection | 11,303           | 42          |
| Disposal: Joint tip               | 3,762            | 2,924       |
| Salvage of waste                  | 1,401            | 1,541       |

## VII - FACTORIES and SHOPS

Under the Factories Acts, 1937 & 1948 the following provisions are enforced by the district council: (a) all factories - sec.7 i.e. sanitary conveniences, (b) factories in which mechanical power is not used - secs 1,2,3,4,6 i.e. cleanliness, overcrowding, temperature, ventilation and drainage of floors.

The following work was carried out by the Council's Public Health Inspectors:-

### 1. INSPECTIONS UNDER PART I, FACTORIES ACT, 1937

| Premises   | Number on register |      | Number of inspections |      | Number of written notices |      | Number of occupiers prosecuted |      |
|--|--------------------|------|-----------------------|------|---------------------------|------|--------------------------------|------|
|  | 1958               | 1959 | 1958                  | 1959 | 1958                      | 1959 | 1958                           | 1959 |
| i) Factories in which sections 1,2, 3,4 and 6 are to be enforced by the Local Authority          | 3                  | 5    | 6                     | 10   | -                         | -    | -                              | -    |
| ii) Factories not included in (i) in which s.7 is enforced by the Local Authority                | 40                 | 43   | 64                    | 80   | -                         | 3    | -                              | -    |
| iii) Other premises in which s.7 is enforced by Local Authority (excluding outworkers' premises) | 12                 | 20   | 10                    | 12   | -                         | -    | -                              | -    |
| Totals:  | 55                 | 68   | 80                    | 102  | -                         | 3    | -                              | -    |

### 2. PARTICULARS OF DEFECTS FOUND:

| Particulars  | Number of Defects Found |      | Defects Remedied |      | Referred to H.M. Inspector |      | Referred by H.M. Inspector |      | Number of Prosecutions |      |
|--|-------------------------|------|------------------|------|----------------------------|------|----------------------------|------|------------------------|------|
|  | 1958                    | 1959 | 1958             | 1959 | 1958                       | 1959 | 1958                       | 1959 | 1958                   | 1959 |
| Sections 1,2,3,4 and 6                                     | -                       | -    | -                | -    | -                          | -    | -                          | -    | -                      | -    |
| Section 7 (Sanitary conveniences)                          |                         |      |                  |      |                            |      |                            |      |                        |      |
| (a) Insufficient   | -                       | 1    | 1                | 1    | -                          | -    | 1                          | -    | -                      | -    |
| (b) Unsuitable or defective                                | -                       | 5    | 1                | 2    | -                          | -    | 1                          | 1    | -                      | -    |
| (c) Not separate for the sexes                             | -                       | -    | -                | -    | -                          | -    | -                          | -    | -                      | -    |
| (d) Other offences against the Acts (excluding outworkers) | -                       | -    | -                | -    | -                          | -    | -                          | -    | -                      | -    |
| Totals:  | -                       | 6    | 2                | 3    | -                          | -    | 2                          | 1    | -                      | -    |



# FACTORIES and SHOPS (continued)

## OUTWORKERS:

|   | 1958 | 1959 |
|---|------|------|
| (a) Total number of outworkers notified to the Council by firms in Northfleet Urban District under section 110 (1c) Factories Act, 1937   | Nil  | Nil  |
| (b) Total number of outworkers notified by Northfleet Urban District Council to other Councils, under section 110 (2) Factories Act, 1937 | Nil  | Nil  |
| (c) Total number of outworkers notified to Northfleet Urban District Council by other Councils, under Section 110 (2)                     | 5    | 2    |
| (d) Total number of outworkers employed in Northfleet Urban District Council  | 5    | 2    |
| (e) Scheduled occupations followed by outworkers in Northfleet Urban District   |      |      |
| Making of wearing apparel   | 5    | 2    |

## SHOPS:

There are some 230 shops and 30 public houses in Northfleet. The total number of inspections for the purpose of ensuring compliance with the Shops Act, 1950, by the Council's Public Health Inspectors for the years 1958 and 1959 were 276 and 179 respectively.

## DUST FROM CEMENT WORKS

### (a) Administrative Features

THE YEARS  
1930-45

Although atmospheric pollution is better studied over a wider area than that covered by this local authority and pollution measurements are the subject of reports by the Thames-side Joint Committee for the Abatement of Atmospheric Pollution it may be useful to review the position so far as it is known to me.

The nuisance caused to the general public by this dust had been the subject of comment for many years before the last war and there was one well known case which occurred about 1932 when a market gardener received satisfaction after action had been started in the Courts for damages caused by this dust.

The installation of electrical precipitators to arrest the dust from cement kilns began in 1933. After 1935, when cement works were brought under the influence of the Alkali etc., Act, all new works and certain kilns already in operation were fitted with electrical precipitators. During the last war certain kilns along Thames-side were out of production and the policy of progressive installation of precipitators was suspended. Precipitators already in use deteriorated. Dusty pollution of the atmosphere was encouraged for defence purposes.

After the war the need for cement led to an increase in production at a time when dust arrestment plant was in disrepair and new plant and spare parts were unobtainable owing to a shortage of steel. Thus the dust nuisance was accentuated.

LOCAL  
GOVERNMENT  
ACTION

In 1947 Dartford Rural District and Swanscombe Urban District Councils convened a conference of Thames-side local authorities to discuss this nuisance and this conference appointed an Investigation Committee. This Committee found, amongst other things, that the cement industry was taking the best practicable means to abate the nuisance but was hindered by non-delivery of the necessary plant and consequently the Committee asserted their influence on the Ministry to release the necessary steel. There was, however, a difference of opinion with the Chief Inspector of Alkali etc., Works who considered that at one of the works electrical precipitators could not be installed for structural reasons; twelve years later following technical advances these precipitators were provided.



In 1949 after amendment by a further conference of Thames-side local authorities, the report of this Committee was formally presented to the Parliamentary Secretary to the Ministry of Health in the presence of three Members of Parliament.

In 1952 the Thames-side Advisory Committee for the Abatement of Atmospheric Pollution was formed. However, in 1953 a further conference of local authorities was called in consequence of the aggravation of the dust nuisance owing to dry weather and dis-repair of five precipitators. This conference requested the Minister to hold a public inquiry to find what further steps should be taken to abate the nuisance and the same year a Towns Meeting at Dartford supported this request. However the Minister did not consider that a public inquiry would be of any practical assistance. In 1955 the Thames-side Advisory Committee was succeeded by the Thames-side Joint Committee who, in 1957, made a further approach to the Minister for a public inquiry which received a similar response. Early in 1959 a public hearing to inform the public rather than the Minister was under consideration.

#### PARLIA- MENTARY ACTION

The question of this nuisance has been raised in the House in 1947, in 1953 and on other occasions. The local Members of Parliament have been closely associated with local government action in all its phases. The Parliamentary Secretaries of the Ministry of Health of two governments have visited the area and so also has the Parliamentary Secretary of the Ministry of Housing and Local Government. The Investigation Committee of 1947 produced a petition of almost 5,000 signatures and in 1954 the officers of the Ministry of Housing and Local Government received a deputation from the Thames-side Advisory Committee which presented a petition of 32,000 signatures. In 1955 suggestions were made to the Members of Parliament for amendments to the Clean Air Bill with the intention of bringing the cement industry under more effective and more local control. In the 1959 General Election the problem became a political issue although the emphasis on a parliamentary remedy varied inversely with the candidates' chances of return.

#### PLANNING

Two fifths of the United Kingdom's supplies of cement are manufactured in the Thames-side area but about 1944 it became the policy of the government and the industry for all new cement works to be sited elsewhere. In 1952 the local cement industry obtained planning permission which would enable them to obtain chalk in the Thames-side area for another fifty years.



LAW                    "If atmospheric pollution is believed to cause a 'nuisance at common law', an action may be brought, in a County Court or the High Court, for damages and an injunction to restrain the defendants from committing the nuisance. ... When an injunction is granted, the offender must stop the nuisance or be liable to more serious penalties." No doubt the Court will be influenced in its judgement by whether the best practicable means are being taken to prevent the nuisance occurring.

Statute Law            The Clean Air Act, 1956, and Alkali etc., Works Regulation Act, 1906, require owners of cement works to use the best practicable means to prevent the escape of grit and dust. This refers not only to the provision and efficient maintenance of appliances adequate for preventing such escape but also to the manner in which such appliances are used and to the proper supervision by the owner of any operation in which such grit and dust are evolved.

Air pollution from cement works is subject to control by the Minister through the Chief Alkali Inspector, who is the expert with a wealth of experience and with a responsibility to the public. Local authorities may take proceedings under the Clean Air Act regarding dust from cement works but must first obtain the consent of the Minister which will only be forthcoming in exceptional circumstances.

Numerical Limits       English law provides no statutory numerical limit to the amount of dust that may be emitted from industry. In the United States certain cities do have ordinances which prescribe a limit to dust emission. The city of St. Louis limits the emission of fly ash to 0.45 grains per cubic foot of flue gas. Los Angeles provides a scale which varies in proportion to the total weight of raw material used up to a maximum discharge rate of 40 lbs/hour but Los Angeles burns no coal and has no cement factories. (Report Cmd. 9322 - 1954)

In the Federal German Republic tentative limits have been devised for the emission of dust from new cement works (V.D.I.2092 1959) and the amount permitted is expressed as a percentage of clinker production. This is the mean of six percentages provided by reference to tables assessing

- 1) type of locality,
- 2) amount of clinker production,
- 3) distance from sensitive neighbours,
- 4) chimney height,
- 5) land contours,
- 6) meteorological conditions.

The figure for a new works with 300 ft. chimney at Thames-side would be  $\frac{1}{6} (2 + 0.5 + 0.25 + 1.6 + 0.75 + 0.75) = \frac{5.85}{6} = .98 = \text{about } 1.0\%$  production and this figure should rarely be exceeded although double



i.e. 2.0% will be allowed in exceptional circumstances. This figure is not as good as that already being achieved here.

#### (b) Technical Features

##### METHODS OF MANUFACTURE

The way dust nuisance is created at the cement works and the trapping of this dust is the province of the engineer and the chemist whereas the observations which follow are the gleanings of an onlooker.

##### Kilns

The origin of the dust that affects the general public is in the kilns wherein the furnace creates cement clinker out of the raw materials. Cement can be manufactured either in vertical kilns, which are stationary and have a rotating grate, or in rotating kilns slightly inclined to the horizontal. The rotary kiln is the more common and one of three ways is used to introduce the raw materials into the kiln, the wet, the semi-dry and the dry. In the wet method the raw material enters in the form of a slurry containing 40% water; in the semi-dry method it enters as nodules containing 12% water.

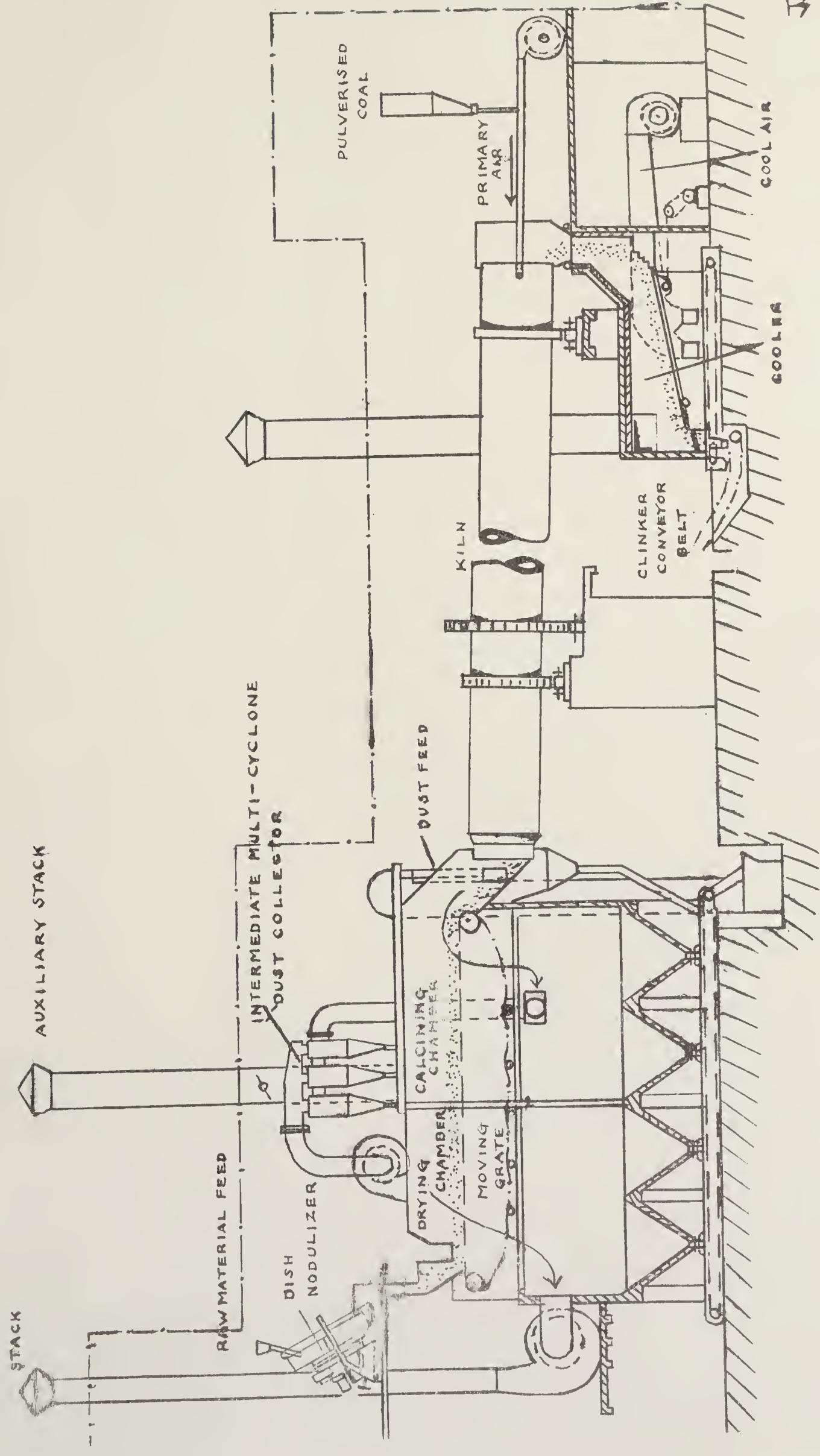
##### Heat Exchange

The raw materials are cold and have to be roasted and therefore it is expedient for the heat of the flue gases to be utilised to give up some of their heat as they pass the entering raw materials and it so happens that methods of heat exchange are complementary to dust arrestment. In the wet method the cooler part of the kiln is festooned with chains which provide a curtain of slurry for the exchange of heat and trapping of dust. In the semi-dry method the nodules enter the kiln from a moving grate and the flue gases pass through the layer of nodules before the latter enter the kiln and these gases are again passed through the bed of nodules at the cooler part of the grate where the raw materials enter. These arrangements both exchange heat and trap dust. In one dry method the powdery raw material enters the first of a series of cyclones which cyclone is the last through which the flue gases escape. From the hopper of that cyclone it enters the inlet of the next cyclone and so on until from the hopper of the cyclone nearest the kiln the raw material enters the kiln together with the arrested dust of the flue gases and the heat obtained therefrom.

The dry process allows more dust in the flue gases which leave the plant than does the wet rotary kiln fitted with chains but its fuel consumption is half. The semi-dry process also consumes half the fuel used by the wet rotary kiln and furthermore passes less dust on but the particles of this dust are finer and more difficult to arrest (Burke 1957).

# THE SEMI-DRY PROCESS OF CEMENT MANUFACTURE

## LEPOL PLANT (DIAGRAMMATIC)



JM





The amount of heat exchange requires consideration. Too rapid drying of raw material will increase the dust content of the flue gases; too rapid cooling of the flue gases will encourage trouble through condensation.

The wet process of cement manufacture is in use at Thames-side. After the last war a spray method used in Germany, of feeding wet slurry into the kilns and said to produce less dust, was installed here but it was given up as it increased rather than diminished the dust content of the flue gases. One plant using the semi-dry process is now installed at Thames-side.

#### METHODS OF DUST ARREST- MENT

##### Cyclones

The use of centrifugal force for dust arrestment presents the form of device in which there is least to go wrong. Dust laden gases enter at a tangent at the top of a cone, spin in a decreasing spiral down the inner side and escape upwards in the centre leaving the separated dust to fall below. The faster the spinning the better the extraction and therefore for high efficiency numerous small cyclones are arranged in parallel. In the multi-cyclone the operative parts are tubular and not conical. This method of trapping separates off about 75% of the dust from the rotary kiln flue gas but the finer the dust the less effective is this method.

##### Bag filters

Bag filtration is a method of dust arrestment used by a number of American cement firms. The kiln gases are filtered through hundreds of vertical bags made of glass cloth, each is cylindrical in shape, about 25 feet in height and 1 foot in diameter. This method of arrestment results in no visible dust being emitted. However, bag filters are only possible where the moisture content of flue gases is low, as in a metal refinery here where they are used. So far this method has only been used in the dry process of cement manufacture. Attempts are being made to adapt it to the wet method but no full scale plant has yet been planned.

##### Electro- static Precipi- tators

The usual type of electrostatic precipitator comprises earthed hexagonal tubes 10 inches in diameter (collecting electrodes) up which the flue gases flow, down the centre of each runs an electrically charged wire or rod (discharge electrode). The dust in the flue gases receives a charge from the central wire electrode and migrates to the walls of the earthed tubes where the dust collects and is then periodically released by rapping. Dust falls against the gas stream into collecting hoppers. It is necessary to rap the discharge electrodes as well as the collecting electrodes.



## Modifications

The cement industry have tried modifications in the collecting electrodes to which they have given the form of rod curtains, corrugated plates and sectionalised plates, all of which take a horizontal gas flow. The practice of rapping with impact hammers has been modified to the use of vibrators and in the case of plate electrodes the hammers have been replaced by cam-operated springs. The rate of rapping has had to be studied so that it can be kept as low as possible in order that the dust can fall from the collector as a sheet and further entrainment with the flue gases avoided. Scavenging of tubular collecting electrodes by high velocity flue gas has been the subject of experiment and study.

The trend is for batches of collecting electrodes to be operated independently so that the working of the electrostatic precipitator is divided into stages, each stage being operated in harmony with the changing dust content of the flue gases. As there is an optimum voltage at which precipitators work and above which flash-over occurs between discharging and collecting electrodes an automatic voltage control to prevent flash-over and yet maintain optimum voltage has been devised.

## Problems

The white plume emerging from the chimney stack is steam albeit with dust particles in its train and as this steam represents 40% of the flue gases corrosion is an ever present problem. It is essential to keep electrostatic precipitators near to the kilns in order that the flue gases will not fall below dew-point and cause short-circuiting and corrosion and this need has created difficulties in providing old kilns with new precipitators. Unfortunately, however near the kiln the precipitator may be, inleaks of air create local chilling with the resultant condensation and corrosion. Steel work has therefore to be avoided where possible and where not possible a corrosion resistant coating provided.

To accommodate the possibilities of break-down precipitators are best arranged in pairs used in parallel so that when a defect appears in one, it can be shut down and all the flue gases can be directed through the other until the former is back in service.

It will be seen that to operate the electrostatic precipitator and to improve technique precision, supervision, adjustment and continual study are required. The permutations and combinations of the factors influencing their effective use are numerous.

## Cost

The cost of an electrostatic precipitator is £60,000 and the annual cost for power and maintenance £2,400 and £600 respectively (Burke 1957). Since 1945 the Thames-side cement



industry has spent over £1,000,000 on providing and maintaining electrostatic precipitators. All the works at Thames-side have been provided with this form of arrestment with the exception of one small kiln on the north side of the Thames and one works with four kilns on the south which is now being equipped.

Standard  
of dust  
Arrestment

In discussing the efficiency of arrestment plant percentages of the flue gas dust which can be arrested are quoted. These may be misleading as the percentage of dust arrestment varies with the dust burden and the size of dust particles. Electrostatic precipitators require artificial draught and this causes more dust to be drawn out than when the kilns are on natural draught. A more significant guide is the amount of dust leaving the plant and its percentage by weight related to the cement clinker produced, which takes into account the amount of dust produced as well as the amount arrested. Löbner (1954) showed that the semi-dry process of manufacture even if associated with only 75% dust arrestment, has a lower dust emission in relation to the clinker produced than spray feed rotary kilns equipped with precipitators arresting 95% of the dust burden, since the dust burden of the semi-dry process is appreciably lower. An arrestment plant of 75% efficiency has, of course, five times the "slip" of one with 95%.

In assessing the discharge of dust and grit from a chimney it is advisable to consider all the following together:

- (a) The percentage escape ("slip") relative to the inlet quantity of suspended matter.
- (b) The total weight of escape in, for example, lbs./day.
- (c) The concentration of solid matter in the effluent gases in, for example, lbs. per million cubic feet.
- (d) The size grading of the escaping dust. Sizes less than 0.020 mm. do not fall to ground. (Report Cmd.9322 1954.)

The 1947 Investigation Committee were of the opinion that an average arrestment of 95% by electrostatic precipitators was the best that in practice could then be hoped for, perhaps 98% is more appropriate now. The Committee on Air Pollution (1954) considered that even with precipitators working at full efficiency it is problematical whether dust emission from cement manufacture can be kept below a rate equivalent to 0.5% of the cement made.

Water  
Washing

"Regarding water washing, this is an excellent method of dust arrestment, but because of secondary difficulties we hesitate to recommend it. It was tried out at our request on a full scale at a works (not on Thames-side) and was efficient. The difficulty



was that the specially designed washer was rapidly corroded and virtually dissolved away. On Thames-side a modified method was applied for several years to emissions from two kilns at the Kent Works in spite of serious corrosion troubles. The practice was stopped early in the war at the request of the Defence Authorities who objected to the conspicuous, dense, white plume of steam. During the war the wash towers fell into a state of decrepitude and it was then decided to replace them by electrical precipitators."

This statement was made by the Chief Alkali Inspector to the 1947 Investigation Committee. The difficulty of corrosion may not be as great to-day but there may remain the drawback of a characteristic musty odour.

#### DISPERSAL

Chimney height, chimney design, the number and position of chimneys in relation to buildings and hills determine the way the flue gases will be dispersed. The height of the stack, its diameter, the heat and velocity of the flue gases and their dust content, all determine what the maximum dust concentration on the ground will be and formulae using these factors are available for calculating this concentration.

The cement industry has aimed at increasing dispersal by increasing chimney height, presumably with a view to lowering the maximum ground concentration. Increasing chimney height receives approval but is there not too ready an assumption that effluvium containing dust should be treated in the same way as effluvium which is gaseous? The dust nuisance here is in the main due to dust particles large enough to be influenced by gravity and maximum concentration can only be reduced by casting the dust over a greater distance. For this size of particle what goes up must come down. Is there not a case for reversing this policy and requesting the industry to restrict dispersal? This could be done by lowering chimney height, increasing the number of chimneys and cooling the flue gases by water washing.

Should the dust be dispersed over numerous local authorities or should it be restricted to a few? The area neighbouring the cement works can be regarded as industrial ribbon development along the Dartford - Gravesend road, beyond are open spaces, the river or barren chalk pits where dust will trouble no one. Does planning control give this aspect sufficient attention?

However, dust emitted from cement works' chimneys contains not only large particles influenced by gravity but also particles small enough to remain suspended in the air until they adhere to

objects at ground level after being brought down by turbulence or by cold ground temperature, as in times of fog. For purposes of dispersal the larger particles should be treated as solids while the minute particles should be treated as a gas, this conflict makes the problem of dispersal complex.

(c) Effects

DEPOSITED  
DUST

The Investigation Committee of 1947 carried out surveys which measured the dust deposit in the neighbourhood of the cement works and used the proportion of calcium to indicate the origin of the dust.

The standard practice for the analyses of the contents of deposit gauges is for the soluble calcium content to be estimated. This practice for the 23 deposit gauges of the Thames-side Joint Committee, however, is supplemented by an analysis of the total calcium content from which the amount of dust from cement works is estimated. The records of the Thames-side Committee therefore show the amount of dust from cement works that has fallen over Thames-side since 1954.

The noteworthy deposits of dust from cement works appear in the gauges within about three miles of the works. As percentages of deposits from other sources the following are approximate averages of six monthly deposits from April, 1954 to March, 1959:-

| Gauge            | Distance of nearest cement works | Ratio of dust from cement works to other deposits |
|------------------|----------------------------------|---|
| Horns Cross      | $\frac{1}{4}$ mile               | 175%  |
| Swanscombe       | $\frac{1}{4}$ mile               | 150%  |
| Northfleet       | $\frac{1}{4}$ mile               | 125%  |
| Dartford central | $2\frac{1}{2}$ miles             | 50%   |

The deposit in these industrial areas from sources other than cement works is about 100 tons per square mile every six months. Thus, at Horns Cross there is in addition an average of 175 tons per square mile of dust from cement works every six months.

There are variations over this period and in 1959 there was an upward trend, nevertheless, generally the tendency has been one of no change. However no figures of cement production are available and it may be that while cement production has increased dust emission has remained almost stable.



SUSPENDED  
DUST

We have no measurements of the amount of light dust originating from the cement works which remains suspended in the air.

HEALTH

Indirect  
Effect

On dry, still days the dust forms a haze which interferes with the penetration of sunlight but such a haze is limited to a defined area which changes with a breeze. The dry, drab greyness evident in the district is said to be depressing but generally this is cleaned away by rain. Indirectly, the dust interferes with ventilation as it compels the housewife to keep her windows shut.

All, including the cement industry, are agreed that the dust is annoying. However, any nuisance is tolerated better if it is known that it is not the product of thoughtlessness and that everything possible has been and is being done to keep it down to a minimum. It is therefore essential that not only should the best practicable means be taken towards this end but that it should be seen by the public that this is being done. For this purpose words alone will not suffice - perhaps a permanent public exhibition giving technical information on the problem would be a worth-while contribution to understanding.

Direct  
Effect

To estimate the effect of this dust on the lung it is necessary to study the physics, chemistry and biology of the interrelationship between its particles and the minute air sacs, such as is the practice with industrial dust hazards. This is not within our resources.

One can theorize that the dust is harmful, one can theorize that it is beneficial.

The dust may be a vehicle for the transmission of the organisms of infection. It is perhaps mildly caustic.

Of the cement works flue dust 30% has a particle size of less than  $5/1000$  mm., and will therefore be suspended and it is this suspended dust which if biologically harmful is capable of entering the lungs and causing ill health. It is usually the presence of free silica that makes such minute dust particles harmful but although silicates are present, the amount of free silica is negligible.

Deposited dust renders the contents of the deposit gauges alkaline and similarly, suspended dust in a humid atmosphere may neutralize acid gaseous pollution. Suspended dust is capable of adsorbing gaseous air pollutants (Irving 1952) most of which are the acid oxides of sulphur and this dust, being

alkaline, should also have a neutralizing action on these presumably harmful constituents. Whether this sort of action occurs in sufficient degree to be protective is conjectural. Our lead peroxide and volumetric gauges do tend to register lower sulphur dioxide readings in the cement making districts than elsewhere which may be evidence of neutralization, perhaps the explanation lies, however, in these districts being more open.

Recently, with the co-operation of the Thames-side cement industry, it has been shown that chromic oxide in clay is oxidised at the furnace end of the cement kilns to hexavalent chromium and that this might cause allergic reactions in a small fraction of susceptible workers handling cement (Johnston 1958). It may be of interest to know if any hexavalent chromium is emitted in the dust with the flue gases in amounts sufficient to affect the general population.

The deposited particles which cause nuisance are too big to be taken into the lungs in respiration and must therefore be harmless to these organs. The dust consists of chalk and clay, about 3:1 with some of the chalk calcined; this type of material has been used experimentally as a protective dust against lung disease.

By and large the dust seems to be inert and in insufficient quantity to have any direct effect on the health of the general population.

In Switzerland two communities similar in social structure were found, one of which was affected by the nuisance of dust from cement works and the other not. Most of these two populations were insured in a state sickness insurance scheme. Sickness records over a period of five years were analysed and it was found that the nature and rate of illness in the two communities showed the same picture. However, this survey was based on only 942 persons' records out of a total population of 9,049 (Grandjean 1958).

Standardised mortality ratios for cancer of the lung and crude death rates for respiratory disease in the Thames-side area give no indication that this dust is injurious to health but the number of deaths in the area is small for statistical analyses. The records of mass-radiography both in the cement industry and in the neighbouring general population show no undue incidence of respiratory disease.



The late Reverend Stanley Morgan said at the 1947 Conference of Local Authorities that in a survey of the problem around 1911 "We could not get enough evidence that there was any damage to health to the district from 'cement dust'. To put it pithily, the churchyards were against us and the burial register did not aid us."

That is about the position to-day.

#### SUMMARY

The action taken by local authorities to alleviate the nuisance caused by dust from cement works, the relevant law in this and other countries, the methods of cement manufacture, dust arrestment and dust dispersal are outlined.

An idea is given of the trend of the amount of dust deposited in recent years.

What is known to the writer of the effect of this nuisance on the health of the general population is described.

The problem of dust from cement works is discussed not with the purpose of attempting to show the way to a remedy but with a view to giving an idea of its complexity.

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